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**Bibliography.**

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(19) [Country of Issue] Japan Patent Office (JP)  
(12) [Official Gazette Type] Open patent official report (A)  
(11) [Publication No.] JP,2003-154078,A (P2003-154078A)  
(43) [Date of Publication] May 27, Heisei 15 (2003. 5.27)  
(54) [Title of the Invention] The production expression method and server of a game machine and a game machine.  
(51) [The 7th edition of International Patent Classification]  
A63F 7/02 304 .  
320 .  
13/00 .  
13/12 .

**[FI]**

A63F 7/02 304 D .  
320 .  
13/00 N .  
13/12 C .  
Z .

[Request for Examination] Un-asking.

[The number of claims] 8.

[Mode of Application] OL.

[Number of Pages] 39.

(21) [Filing Number] Application for patent 2001-358107 (P2001-358107)

(22) [Filing Date] November 22, Heisei 13 (2001. 11.22)

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[Theme code (reference)]

2C001.

2C088.

[F term (reference)]

2C001 AA00 AA02 bus-available02 bus-available05 bus-available06 bus-available07 BC09 CA01 CA02 CB01 CB04 CB06 CB08 CC02 CC03.

2C088 AA35 AA36 AA42 BC07 EB55.

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**Summary.**

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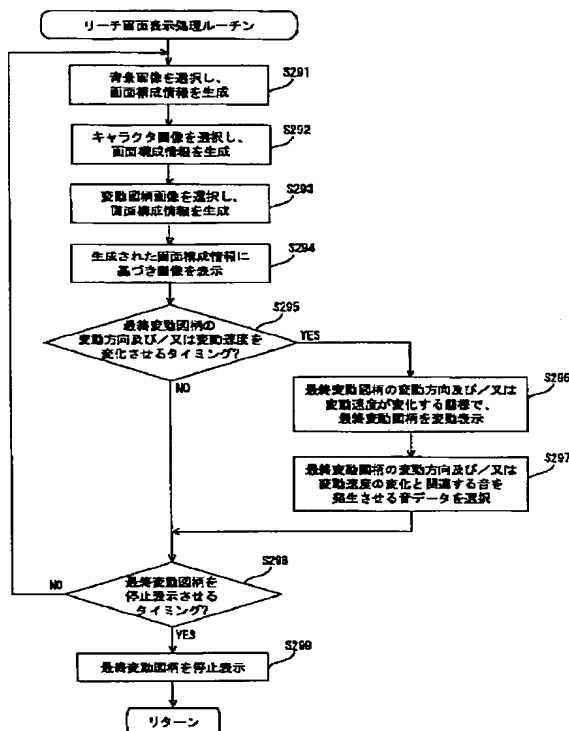
(57) [Abstract]

[Technical problem] When you raise the degree of expectation about the whereabouts of a game, and the degree of excitement and a game is becoming it a great success, without making a monotonous feeling and a feeling of fatigue memorized, uplift a game person's feeling of fullness and feeling of achievement, and offer the game machine which can aim at fast improvement in interest.

[Means for Solution] The identification information picture which consists of two or more change patterns by which it is prepared in a game board, and a change indication of each is given, and it may be indicated by halt to predetermined timing, It has the display as which a screen picture including a production picture is displayed, and the loudspeaker which outputs the sound according to the game situation. by the aforementioned loudspeaker So that the change direction and/or fluctuation

velocity of the last change pattern which are the game machine which can output the sound which the effect of a binaural sound makes, and determine whether become great success after becoming reach may change and it may be connected with the change The game machine characterized by outputting the sound which the effect of the aforementioned binaural sound makes.

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## CLAIMS

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[Claim(s)]

[Claim 1] It has the display as which the screen picture characterized by providing the following is displayed, and the loudspeaker which outputs the sound according to the game situation. by the aforementioned loudspeaker So that the change direction and/or fluctuation velocity of the last change pattern which are the game machine which can output the sound which the effect of a binaural sound makes, and determine whether become great success after becoming reach may change and it may be connected with the change The game machine characterized by outputting the sound which the effect of the aforementioned binaural sound makes. The identification information picture which consists of two or more change patterns by which it is prepared in a game board, and a change indication of each is given, and it may be indicated by halt to predetermined timing. Production picture.

[Claim 2] The game machine characterized by outputting the sound which the effect of the aforementioned binaural sound makes so that the change direction and/or fluctuation velocity of the last change pattern which are the game machine characterized by providing the following, and determine whether become great success after becoming reach may change and it may be connected with the change. It is prepared in a game board and the game situation developed on the game board concerned is embraced. suitably The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is displayed, It has the loudspeaker which outputs the sound according to the game situation, and the control section which transmits transmission of the electronic data to the aforementioned display, and the correspondence number to the aforementioned loudspeaker at least. by the aforementioned loudspeaker the identification information picture which consists of a change pattern which is the plurality by which it is [ plurality ] possible to output the sound which the effect of a binaural sound makes, and a change indication of the aforementioned screen picture is given, and a halt indication of each may be given to predetermined timing Production picture.

[Claim 3] The sound which the effect of the aforementioned binaural sound makes is a game machine according to claim 1 or 2 which is the sound which generates a virtual source, and outputs the sound which generates the aforementioned virtual source so that the change direction and/or fluctuation velocity of the aforementioned last change pattern may change and it may be connected with the change after becoming reach.

[Claim 4] The sound which generates the aforementioned virtual source is a game machine according to claim 3 which is suction sound.

[Claim 5] Two or more aforementioned change patterns are game machines according to claim 1 to 4 whose change direction of the aforementioned last change pattern it is horizontally indicated by change and is the same direction as the

change direction or opposite direction of a change pattern of the aforementioned plurality.

[Claim 6] The aforementioned loudspeaker is a game machine given in any 1 of the claims 1-5 which are parametric loudspeakers.

[Claim 7] The production expression method of the game machine characterized by to make the sound which the effect of the aforementioned binaural sound makes output so that the change direction and/or the fluctuation velocity of a last change pattern which are the production expression method of the game machine characterized by to provide the following, and determine whether to become great success after becoming reach change and it may be connected with the change. It is prepared in a game board and the game situation developed on the game board concerned is embraced. suitably The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is displayed, It is the production expression method of the loudspeaker which outputs the sound according to the game situation, and the game machine equipped with the control section which transmits transmission of the electronic data to the aforementioned display, and the correspondence number to the aforementioned loudspeaker at least. by the aforementioned loudspeaker the sound which the effect of a binaural sound makes is outputted -- the identification information picture by which things are [ a picture ] possible, and a change indication of each is given and a halt indication of the aforementioned screen picture may be given to predetermined timing Production picture.

[Claim 8] The server which it is the server to which the sound according to the game situation is made to output, and can perform control to which the sound which the effect of a binaural sound makes to each aforementioned terminal is made to output while displaying the game machine picture which is characterized by providing the following, and which shows a game machine to each terminal. The identification information picture which consists of two or more change patterns in which it is indicated by change and a halt indication of each may be given to predetermined timing according to the situation of the game performed in the aforementioned terminal. Production picture.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the production expression method and server of game machines, such as pachinko game equipment, and a game machine.

[0002]

[Description of the Prior Art] Since the game person who plays a pachinko game is not bored, in order to make the game state grasp, pachinko game equipment is equipped with the display which has CRT, a liquid crystal display monitor, etc. In this display, in order to excite the interest over a game person's game, while a change indication of the change pattern which has two or more identification information which consists of a numeric value etc. is usually given, production expression which displays background images, such as an animation which has fixed narrativeness as a production picture, is performed. Generally, the voice which the sound which is in the middle of expansion of a tale, and is made, a character, etc. generate is tintured with importance, so that it will become high, if the story nature becomes high in the animation which has such narrativeness. For this reason, the device made into the tale which has presence more is made by making such sound output from the loudspeaker in which it was prepared by the game machine.

[0003] Recently, what has various tales, characters, etc. which are developed within this display, such as making the hero of a graphic novel and the person related to it appear in such a production picture, or making the person of professional wrestling or sumo wrestling appear etc., has appeared.

[0004] Moreover, so that various things may have appeared, for example, it may correspond to operation of a character etc. also about the so-called reach production after becoming reach The last change pattern moves, or many production of deforming is also seen, and in case a halt indication of the last change pattern of determining whether become especially reach is given, production to which the change mode of the last change pattern is changed is performed for the purpose of making a game person recognize it etc.

[0005] However, recently, since a game person is also experiencing the various production methods, just before the eye is fertile and a halt indication of the last change pattern is given, it is in the inclination are not satisfied [ only with changing the change mode of the last change pattern ] of an inclination, and the production including the change mode of the last change pattern which has impact more is called for.

[0006]

[Problem(s) to be Solved by the Invention] this invention is made in view of the technical problem mentioned above. the purpose While being able to make change of the last change pattern recognize firmly to a game person When the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without being able to give the presence by sound and making a monotonous feeling and the malaise memorized A game person's feeling of fullness and feeling of achievement are uplifted, and it is in offering the production expression method and server of a game machine and a game machine which can aim at fast improvement in interest.

[0007]

[Means for Solving the Problem] In order to attain the above purposes, after this invention serves as reach, it is characterized by outputting the sound which the effect of the above-mentioned binaural sound makes so that the change direction and/or fluctuation velocity of the last change pattern which determine whether become great success may change and it may be connected with the change.

[0008] More specifically, this invention offers the following.

(1) The identification information picture which consists of two or more change patterns by which it is prepared in a game board, and a change indication of each is given, and it may be indicated by halt to predetermined timing, It has the display as which a screen picture including a production picture is displayed, and the loudspeaker which outputs the sound according to the game situation. by the above-mentioned loudspeaker the sound which the effect of the above-mentioned binaural sound makes is outputted so that it is the game machine which can output the sound which the effect of a binaural sound makes, and the change direction and/or fluctuation velocity of the last change pattern which determine whether become great success may change and it may be connected with the change, after becoming reach — it is characterized by things

[0009] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity according to invention of (1), the presence by the binaural sound can be given. For example, when a change indication of the last change pattern is given towards right-hand side from screen left-hand side, i.e., when the change direction of the last change pattern is the right, and the change direction of this last change pattern changes leftward after becoming reach, the sound which suction sound has made from a game person's left-hand side generates using the sound which the effect of a binaural sound makes. While a game person can recognize change of the change direction of the last change pattern not only by the visual sense but by the acoustic sense by doing in this way, the presence the game person itself is on that occasion can be memorized, and it can be immersed in feeling by which the last change pattern is actually absorbed from a

game person's left-hand side. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and the malaise memorized to a game person, a game person's feeling of fullness and feeling of achievement can be uplifted, and fast improvement in interest can be aimed at.

[0010] this invention offers further the following.

It is prepared in a game board and the game situation developed on the game board concerned is embraced. (2) Suitably The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is displayed, It has the loudspeaker which outputs the sound according to the game situation, and the control section which transmits transmission of the electronic data to the above-mentioned display, and the correspondence number to the above-mentioned loudspeaker at least. by the above-mentioned loudspeaker It is possible to output the sound which the effect of a binaural sound makes. and the above-mentioned screen picture The identification information picture which consists of two or more change patterns in which it is indicated by change and a halt indication of each may be given to predetermined timing, It is a game machine including a production picture, and after becoming reach, it is characterized by outputting the sound which the effect of the above-mentioned binaural sound makes so that the change direction and/or fluctuation velocity of the last change pattern which determine whether become great success may change and it may be connected with the change.

[0011] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity according to invention of (2), the presence by the binaural sound can be given. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and a feeling of fatigue memorized to a game person, a game person's feeling of fullness and feeling of achievement can be uplifted, and fast improvement in interest can be aimed at.

[0012] this invention offers further the following.

(3) the above-mentioned virtual source is generated so that it may be the above (1) or a game machine given in (2), and the sound which the effect of the above-mentioned binaural sound makes is sound which generates a virtual source, and the change direction and/or fluctuation velocity of the above-mentioned last change pattern may change and it may be connected with the change, after becoming with reach — it is characterized by outputting sound

[0013] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which generates a virtual source so that it may be connected with change of the change direction of the last change pattern,



and/or fluctuation velocity according to invention of (3), the presence by the virtual source which made it generate can be given. For example, when the change direction of the last change pattern after becoming reach is the right and the change direction of this change pattern changes leftward, it also becomes possible to perform unique and new production which synchronizes the change display of the last change pattern and movement of a virtual source, such as to use for the sound which generates a virtual source, to generate a virtual source on the right-hand side of a game person, and to move this virtual source to left-hand side from right-hand side. Consequently, the degree of expectation about the whereabouts of a game and the degree of excitement can be raised further, without making a monotonous feeling and a feeling of fatigue memorized to a game person.

[0014] this invention offers further the following.

(4) It is a game machine given in the above (3), and sound which generates the above-mentioned virtual source is characterized by being suction sound.

[0015] When according to invention of (4) a change indication of the last change pattern is given towards right-hand side from screen left-hand side (i.e., when the change direction of the last change pattern is the right) and the change direction of this last change pattern changes leftward, for example after becoming reach, sound which suction sound has made is generated on the left-hand side of a game person using the sound which generates a virtual source. While a game person can recognize change of the change direction of the last change pattern certainly not only by the visual sense but by the acoustic sense by doing in this way, the presence the game person itself is on that occasion can be memorized, and it can be immersed in feeling by which the last change pattern is actually absorbed from a game person's left-hand side. Consequently, the degree of expectation about the whereabouts of a game and the degree of excitement can be raised by leaps and bounds, without making a monotonous feeling and the malaise memorized to a game person.

[0016] this invention offers further the following.

(5) The above (1) It is a game machine given in any 1 of - (4), and it is horizontally indicated by change and two or more above-mentioned change patterns are characterized by the change direction of the above-mentioned last change pattern being the same direction as the change direction or opposite direction of a change pattern of the above-mentioned plurality.

[0017] Since the change direction of two or more change patterns before being in a reach state, and the change direction of the last change pattern after being in a reach state are parallel according to invention of (5), the movement of an eye becomes easy and a game person memorizes neither displeasure nor sense of incongruity. Consequently, a game person can enjoy a game over a long time, without sensing tiredness to a game.

[0018] Moreover, in invention of (5), the change direction of the last change pattern and/or change of fluctuation velocity are change which goes horizontally, and they

output the sound which the effect of a binaural sound makes so that it may be connected with the change. For example, when sound which suction sound has made from a game person's left-hand side when the change direction of the last change pattern changes leftward is generated and the change direction of the last change pattern changes rightward, sound which suction sound has made from a game person's right-hand side is generated. Thus, when the sound which suction sound makes in a game person's longitudinal direction is generated, it originates in the property of the acoustic sense of being easy to recognize the sound of a longitudinal direction, and the effect of a binaural sound can fully be acquired compared with the case where the sound which suction sound makes in a game person's vertical direction is generated etc. Thus, since it becomes possible to fully acquire the effect of a binaural sound according to invention of (5), to a game person, presence can be given further and it becomes possible to raise the excitement to a game.

[0019] this invention offers further the following.

(6) The above (1) It is invention given in any 1 of - (5), and the above-mentioned loudspeaker is characterized by being a parametric loudspeaker.

[0020] By this invention, the change direction and/or fluctuation velocity of the last change pattern change, and as mentioned above, after becoming reach, the sound which the effect of a binaural sound makes is outputted so that it may be connected with the change. therefore -- without a surrounding game person will look at the game machine of the above 1 in the game machine of 1 if the sound which the effect of a binaural sound makes is outputted, so that it may be connected with change of the change direction of the above-mentioned last change pattern, and/or fluctuation velocity -- this -- in the game machine of 1, it can know easily that a reach state has occurred and a great success state may occur in the near future However, when great success does not occur after that, the game person who is performing the game with the game machine of the above 1 having that pointed out from the circumference, and carrying out a shameful thought is also considered.

[0021] However, since according to invention of (6) sound to tell a game person can be put and emitted to a strong directive ultrasonic wave by the above-mentioned parametric loudspeaker and sound can be centralized on a predetermined part like a spotlight, it can prevent that the sound outputted from the game machine of the above 1 will be heard by other game persons. For this reason, as connecting with change of the change direction of a last change pattern, and/or fluctuation velocity, even if it is the case that the effect of a binaural sound was outputted, other game persons who are in the circumference of the game machine of the above 1 cannot hear the sound which the effect of the above-mentioned binaural sound makes, and cannot know easily that a reach state has occurred in the game machine of the above 1 in the game machine of the above 1. Consequently, after becoming reach, even if it is the case where a great success state does not occur, the game person who is performing the game with the game machine of the above 1 can be concentrated on a game in comfort, without carrying out a shameful thought.

[0022] this invention offers further the following.

It is prepared in a game board and the game situation developed on the game board concerned is embraced. (7) Suitably The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is displayed, It is the production expression method of the loudspeaker which outputs the sound according to the game situation, and the game machine equipped with the control section which transmits transmission of the electronic data to the above-mentioned display, and the correspondence number to the above-mentioned loudspeaker at least. by and the above-mentioned loudspeaker It is possible to output the sound which the effect of a binaural sound makes. and the above-mentioned screen picture The identification information picture by which it is indicated by change and a halt indication of each may be given to predetermined timing. It is the production expression method of a game machine including a production picture, and after becoming reach, it is characterized by making the sound which the effect of the above-mentioned binaural sound makes output so that the change direction and/or fluctuation velocity of the last change pattern which determine whether become great success may be changed and it may be connected with the change.

[0023] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity according to invention of (7), the presence by the binaural sound can be given. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and a feeling of fatigue memorized to a game person, a game person's feeling of fullness and feeling of achievement can be uplifted, and the production expression method of the game machine which can aim at fast improvement in interest can be offered.

[0024] this invention offers further the following.

(8) While displaying the game machine picture which shows a game machine to each terminal, it is the server to which the sound according to the game situation is made to output. And it is the server which can perform control to which the sound which the effect of a binaural sound makes to each above-mentioned terminal is made to output. The identification information picture which consists of two or more change patterns in which it is indicated by change and a halt indication of each may be given to predetermined timing according to the situation of the game performed in the above-mentioned terminal, While performing control on which a screen picture including a production picture is displayed to a terminal After becoming reach, it is characterized by performing control to which the sound which the effect of the above-mentioned binaural sound makes is made to output to a terminal so that the change direction and/or fluctuation velocity of the last change pattern which

determine whether become great success may be changed and it may be connected with the change.

[0025] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity according to invention of (8), the presence by the binaural sound can be given. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and the malaise memorized to a game person, a game person's feeling of fullness and feeling of achievement can be uplifted, and the server which can aim at fast improvement in interest can be offered.

[0026] In a [definition-of-term etc. book] specification, "identification information" means identifiable information by visual senses, such as a character, a sign, a pattern, or a pattern. The case where "a change display" changes from the pattern "7" which is one identification information when identification information changes one by one to the pattern "8" which are other identification information, In the case while one identification information had been displayed in the viewing area which can display identification information besides in the case of changing to other patterns "\*" from the pattern "9", so that the identification information may move and may be displayed For example, it is a concept including the case where it moves one pattern "7" being displayed in a viewing area etc.

[0027] "The sound which the effect of a binaural sound makes" means the sound in which depth and a breadth are impressed to a game person. the sound which the effect of such a binaural sound makes can obtain by outputting sound based on the correspondence number which performed processing, after performing the processing to which the correlation coefficient which is the sound pressure of the sound in the entrance of both the game person's ears changes, the processing which add the correspondence number which generates reverberation sound as opposed to the sound data used as the correspondence number which generates sound, and this correspondence number In addition, in this specification, we suppose that sound data mean the electronic data memorized by the storages (for example, ROM etc.) with which the game machine etc. was equipped, and a correspondence number decides to say the electrical signal inputted into a loudspeaker.

[0028] Moreover, although it is possible to output the sound which the effect of a binaural sound usually makes by using two pieces or three loudspeakers or more (circuit) in case sound is outputted based on the correspondence number which performed processing which was mentioned above, or sound data Also in the game machine of this invention, and the terminal (henceforth a terminal etc.) controlled by the server of this invention, it is the same, and the sound which the effect of a binaural sound makes can be outputted by using two pieces or three loudspeakers or more (circuit). Moreover, it is not necessary to necessarily use two pieces or three

loudspeakers or more, and you may be one piece in this invention. Moreover, it is not especially limited about the position in which the above-mentioned loudspeaker is prepared. About the position and the number of the above-mentioned loudspeaker, it is possible to set up suitably so that the effect of a binaural sound may fully be acquired with the sound outputted from a loudspeaker.

[0029] moreover, in the game machine of this invention, only when the change direction and/or fluctuation velocity of the last change pattern change after necessarily not outputting the sound which the effect of a binaural sound always makes, for example, becoming reach, the sound which the effect of the above-mentioned binaural sound makes is outputted so that it may be connected with the change -- it is good also as things

[0030] A period after a halt indication of the change patterns other than the last change pattern "is given [ becoming reach and ]" in the same pattern among two or more change patterns until a halt indication of the above-mentioned last change pattern is given is said. In addition, in this invention, the period when a halt indication of the last change pattern was given is not contained in the above-mentioned period.

[0031] It says that the change direction of for example, the last change pattern changes leftward from the right, saying "the change direction and/or fluctuation velocity of the last change pattern change", or the fluctuation velocity of the last change pattern becomes quick, or fluctuation velocity becomes quick at the same time the change direction of the last change pattern changes leftward from the right etc. However, in this invention, after a halt indication of the above-mentioned last change pattern is given, it is not included in the change direction of the last change pattern mentioned above, and/or change of fluctuation velocity that a change indication of this last change pattern is given again. In addition, it says that a halt indication of the period and this last change pattern which the halt display of the last change pattern in this case can be recognized that a halt indication of the last change pattern was given at least for a game person is given. For example, when a change indication of the last change pattern of 1 is given rightward, after a halt indication of this last change pattern is given at the grade which cannot be checked by looking as having been indicated by halt for the game person, being indicated leftward by change also corresponds to "change of the change direction of the last change pattern" in this invention.

[0032] Therefore, in a reach state, the so-called re-change by which a change indication of two or more above-mentioned change patterns of all is given, or a change indication of a part of two or more above-mentioned change patterns is again given after a halt indication of two or more change patterns of all is given does not correspond to the change direction of the last change pattern after becoming the reach in this invention, and/or change of fluctuation velocity. However, a period after [ as mentioned above, ] re-changing two or more change patterns and the reach state concerned occurs, when a reach state occurs until a halt indication of the last change pattern is given corresponds, after [ which was mentioned above /

"after becoming the reach" ].

[0033] The above-mentioned loudspeaker produced in a game person's feeling means the sound source of the imagination which exists in a different position with the sound to which a "virtual source" is outputted from the loudspeaker with which the game machine etc. was equipped. Therefore, it is sensed that the above-mentioned virtual source generated on right-hand side in spite of having outputted the loudspeaker with which the game machine which a game person has in a transverse plane when the sound which generates a virtual source by the loudspeaker with which the game machine etc. was equipped when the game person was located in transverse planes, such as a game machine, is outputted and a virtual source is generated on the right-hand side of a game person was equipped to sound to sound is outputted. That is, it means that the above-mentioned virtual source had occurred in a different position from the above-mentioned loudspeaker in a game person's feeling.

[0034] The sound which the effect of the above-mentioned binaural sound makes in the game machine of this invention is sound which generates a virtual source, and after it serves as reach, it is desirable [ sound ] to output the sound which generates the above-mentioned virtual source so that the change direction and/or fluctuation velocity of the above-mentioned last change pattern may change and it may be connected with the change. It is because it becomes possible to raise further the degree of expectation about the whereabouts of a game, and the degree of excitement, without making a monotonous feeling and a feeling of fatigue memorized to a game person since it becomes possible to perform unique and new production which synchronizes the change display of the last change pattern, and movement of a virtual source as mentioned above. Hereafter, the above-mentioned virtual source is explained.

[0035] The acoustic wave from a loudspeaker results in the eardrum of both the game person's ears in response to an operation of the transfer system of places, such as an amusement center and space, in which for example, a game person is, and the transfer system by reflection of a game person's head, a concha, a shoulder, etc., diffraction, and resonance. The transfer function of these transfer systems, i.e., the transfer function from a sound source to external auditory meatus, is called head sound transfer function. The above-mentioned head sound transfer function can be acquired with measuring methods, such as an M sequences method and the cross-spectrum method.

[0036] The above-mentioned virtual source can be processed in sound data or a correspondence number, and can make it generate using the head sound transfer function acquired according to the physical relationship of for example, a game person and the loudspeaker with which the game machine etc. was equipped, physical relationship with the virtual source which makes it generate with a game person, etc. by outputting the sound based on these sound data or a correspondence number. It is possible to perform such processing by DSP (Digital

Signal Processor) which is a processing unit, for example, it can realize by using an FIR (Finite-duration Impulse Response) filter and filters, such as IIR (Infinite-duration Impulse Response).

[0037] Furthermore, the above-mentioned virtual source will be explained in full detail using drawing 1 -3. Drawing 1 is explanatory drawing shown as compared with the state where the sound outputted by the virtual source to which a listener exists the state where explanatory drawing about a virtual source, i.e., a listener, is hearing the sound outputted by two loudspeakers arranged ahead of this listener in this listener's right rear side is heard.

[0038] First, it is assumed that Listener A is hearing the sound outputted by the virtual source 210 which exists in Listener's A right rear side. The frequency characteristic of the sound outputted by the virtual source 210 at this time If HL and the head sound transfer function from a virtual source 210 to Listener's A right ear (are set [ for example, / sound pressure level, frequency, etc. ]) to HR for VS and the head sound transfer function from a virtual source 210 to Listener's A left ear The frequency characteristic EL of the sound in near the external ear of Listener's A left ear and the frequency characteristic ER of the sound in near the external ear of a right ear can be expressed with (following 1) and following (2) formula, respectively (refer to drawing 1 ).

$$EL=VS \times HL \dots (1)$$

$$ER=VS \times HR \dots (2)$$

[0039] Next, the case where the sound outputted by the loudspeaker 201 (201a, 201b) is being heard is considered. In addition, loudspeaker 201a is located in the left-hand side ahead of Listener A, and loudspeaker 201b is located in the right-hand side ahead of Listener A. LS and the head sound transfer function from loudspeaker 201a to Listener's A left ear for the frequency characteristic of the sound outputted by loudspeaker 201a LGL, The head sound transfer function from loudspeaker 201b to Listener's A right ear is set to LGR. If RGL and the head sound transfer function from loudspeaker 201b to Listener's A right ear are set to RGR for RS and the head sound transfer function from loudspeaker 201b to Listener's A left ear, the frequency characteristic of the sound outputted by loudspeaker 201b The frequency characteristic EL of the sound in near the external ear of Listener's A left ear and the frequency characteristic ER of the sound in near the external ear of a right ear can be expressed with (following 3) and following (4) formula, respectively (refer to drawing 1 ).

$$EL=LS \times LGL+RS \times RGL \dots (3)$$

$$ER=LS \times LGR+RS \times RGR \dots (4)$$

[0040] (Following 5) and following (6) formula can be obtained about the frequency characteristic LS of the sound outputted by loudspeaker 201a by the above-mentioned (1) - (4) formula, and the frequency characteristic RS of the sound outputted by loudspeaker 201b (refer to drawing 1 ).

$$LS=VS \times (RGL \times HR - RGR \times HL) / XG \dots (5)$$

$$RS=VSx (-LGLxHR+LGRxHL)/XG \dots (6)$$

(However,  $XG=RGLxLGR-RGRxLGL$ )

[0041] Moreover, as shown in drawing 1, when a loudspeaker 201 (201a, 201b) sees from Listener A and is arranged at the bilateral symmetry, let the head sound transfer function, i.e., the head sound transfer function LGL and the head sound transfer function RGR, from a loudspeaker 201 to Listener's A ear of the nearer one be the same head sound transfer function. The same is said of the head sound transfer function to the ear of the one where Listener A is distant from a loudspeaker 201. Therefore, if GN and the head sound transfer function to the ear of the one where Listener A is distant from a loudspeaker 201 are set to GF, the above (5) and (6) formulas can also show the head sound transfer function from a loudspeaker 201 to Listener's A ear of the nearer one like (following 7) and following (8) formula, respectively.

$$LS=VSx(GFxHR-GNxHL)/(GF^2-GN^2) \dots (7)$$

$$RS=VSx(-GNxHR+GFxHL)/(GF^2-GN^2) \dots (8)$$

[0042] Namely, the frequency characteristic VS of the sound outputted by the virtual source 210 is set up. The above (5) and processing using (6) formulas (the above (7) and (8) formulas) are performed to the correspondence number or sound data made to generate the sound of the frequency characteristic VS. The correspondence number or sound data made to generate the sound of the frequency characteristics LS and RS is obtained, and it becomes possible to generate a virtual source 210 by outputting the sound based on the obtained correspondence number or sound data of the frequency characteristics LS and RS from loudspeaker 201a and loudspeaker 201b, respectively.

[0043] However, when a virtual source is generated by the method mentioned above, there is a possibility that a cross talk may occur in the sound which reaches from a left loudspeaker to a right ear, and the sound which reaches from a right loudspeaker to a left ear. When the above-mentioned cross talk occurs, a listener may memorize sense of incongruity in the position of a virtual source. Such a cross talk can suppress the generating by performing processing which negates the above-mentioned cross talk to the correspondence number which generates the sound outputted by the loudspeaker. Next, how to output the sound which generating of the above-mentioned cross talk is suppressed [ sound ] and generates a virtual source is explained.

[0044] Drawing 2 is explanatory drawing shown as compared with the state where the sound outputted by the virtual source to which a listener exists in this listener's right rear side in explanatory drawing about a virtual source, i.e., the state where the listener is hearing the sound outputted from headphone, is heard. The case where Listener A is hearing the sound outputted by headphone 301 (301a, 301b) is considered. In addition, headphone 301a is located in Listener's A left-hand side, and headphone 301b is located in Listener's A right-hand side. If the frequency characteristic of the sound outputted by LP and headphone 301b in the frequency



characteristic of the sound outputted by headphone 301a is set to NB, the frequency characteristic EL of sound in near the external ear of Listener's A left ear and the frequency characteristic ER of the sound in a right ear can express RP and the head sound transfer function from headphone 301 (301a, 301b) to Listener's A ear with (following 9) and following (10) formula for it, respectively (refer to drawing 2 ).

$$EL=LP \times NB \dots (9)$$

$$ER=RP \times NB \dots (10)$$

[0045] (Following 11) and following (12) formula can be obtained about the frequency characteristic LP of the sound outputted by the above (1) and (2) formulas, and the above (9) and (10) formulas by headphone 301a, and the frequency characteristic RP of the sound outputted by headphone 301b (refer to drawing 2 ).

$$LP=VS \times HL/NB \dots (11)$$

$$RP=VS \times HR/NB \dots (12)$$

[0046] (Following 13) and following (14) formula can be obtained about the frequency characteristic LS of the sound outputted by the above (7) and (8) formulas, and the above (11) and (12) formulas by loudspeaker 201a, and the frequency characteristic RS of the sound outputted by loudspeaker 201b (refer to drawing 1 and drawing 2 ).

$$LS=[(NB/GN)/(1-(GF/GN)^2)] \times [LP - (GF/GN)$$

$$\times RP] \dots (13)$$

$$RS=[(NB/GN)/(1-(GF/GN)^2)] \times [RP - (GF/GN)$$

$$\times LP] \dots (14)$$

[0047] Thus, the frequency characteristic VS of the sound outputted by the virtual source 210 is set up. Processing using the above-mentioned (11) - (14) formula is performed to the correspondence number of the frequency characteristic VS. The correspondence number of the frequency characteristics LS and RS is obtained, and it becomes possible to generate a virtual source 210, without generating most cross talks by outputting the sound based on the correspondence number of the obtained frequency characteristics LS and RS from loudspeaker 201a and loudspeaker 201b, respectively. Drawing 3 is explanatory drawing in order to explain explanatory drawing about a virtual source, i.e., process in which processing mentioned above is performed.

[0048] The correspondence number or sound data (frequency characteristic : LP, RP) outputted by headphone 301 can be obtained by preparing beforehand the correspondence number or sound data used as the sound (frequency characteristic : VS) made to output by the virtual source 210, and processing this correspondence number using the filter 401 obtained by the above (11) and (12). Usually, this processing is called binaural conversion. Next, the correspondence number or sound data (frequency characteristic : LS, RS) made to generate the sound outputted by the loudspeaker 201 can be obtained by processing the obtained correspondence number or sound data (frequency characteristic : LP, RP) using the filters 402 and 403 obtained by the above (13) and (14).

[0049] Thus, while outputting the sound of the frequency characteristic LS by loudspeaker 201a based on the obtained correspondence number or sound data, Listener A senses that sound is outputted from the virtual source 210 generated in the right rear side, in spite of outputting sound from the loudspeaker 201 by outputting the sound of the frequency characteristic RS by loudspeaker 201b. In addition, what is necessary is just to prepare the filters 401-403 corresponding to the movement, in order to move the above-mentioned virtual source. moreover, change of the sound which reaches both the ears of the above-mentioned listener according to the movement in consideration of a listener's head moving a little etc. - an amendment - you may prepare the filter which can do things

[0050] In this invention, you may decide to perform the above (5) and processing using (6) to the sound data memorized by the storages (for example, ROM etc.) of the game inside of a plane, or the correspondence number inputted into a loudspeaker, and may decide to perform processing using above-mentioned (11) - (14). Moreover, you may store in the storages (for example, ROM etc.) of the game inside of a plane beforehand the sound data which performed these processings.

[0051] Moreover, as a loudspeaker which can be used in case a virtual source is generated by method which was mentioned above, a well-known loudspeaker, for example, a cone speaker, a horn loudspeaker, a dome loudspeaker, a capacitor loudspeaker, a ribbon type loudspeaker, an ion type loudspeaker, etc. can be mentioned conventionally.

[0052] As for "suction sound", sand, water, air, etc. say the sound expressing signs that a certain body is absorbed. Moreover, the above-mentioned suction sound contains sound which may make signs that a certain body is absorbed imagine to a game person although signs that a body is absorbed directly are not expressed, such as operation sound of a cleaner or a pump. In addition, as for the sound which generates the above-mentioned virtual source, in this invention, it is desirable that it is suction sound. While being able to make change of the change direction of the last change pattern recognize certainly not only by the visual sense but by the acoustic sense to a game person, you can give the presence the game person itself is on that occasion, and can make it immersed in feeling by which the last change pattern is actually absorbed from a game person's left-hand side. Thus, the degree of expectation about the whereabouts of a game and the degree of excitement can be raised by leaps and bounds, without making a monotonous feeling and a feeling of fatigue memorized to a game person by generating suction sound to be connected with the change direction of the last change pattern etc.

[0053] A "parametric loudspeaker" is a loudspeaker which sound (acoustic wave of a audio range) to tell a game person is put and outputted [ loudspeaker ] to a strong directive ultrasonic wave, and centralizes sound on a predetermined part like a spotlight, and it is the loudspeaker which generates sound to tell a game person by carrying out self-detection of the outputted ultrasonic wave using the nonlinear interaction of an acoustic wave.

[0054] In addition, as for a loudspeaker, in the game machine of this invention, it is desirable that it is a parametric loudspeaker. It is because it can concentrate on a game in comfort, without carrying out a shameful thought even if it is the case where a great success state does not occur after becoming reach, as mentioned above. Hereafter, the above-mentioned parametric loudspeaker is explained using drawing 4 .

[0055] Drawing 4 (a) is explanatory drawing about a parametric loudspeaker, and drawing 4 (b) is drawing showing typically the frequency spectrum of the nonlinear interaction by the sine wave. Moreover, (c) is drawing showing typically the frequency spectrum of the nonlinear interaction by the amplitude modulation wave.

[0056] As shown in drawing 4 (a), the case where the ultrasonic wave of frequency  $f_1$  and the ultrasonic wave (however,  $f_2 > f_1$ ) of frequency  $f_2$  which are a primary acoustic wave are outputted from the parametric loudspeaker 500 is considered. The frequency spectrum which shows the nonlinear interaction of the sine waves in such a situation comes to be shown in drawing 4 (b). That is, when the ultrasonic wave of frequency  $f_1$  and the ultrasonic wave of frequency  $f_2$  which are a primary acoustic wave carry out nonlinear interference, the sound (chord) of the frequency  $(f_2 + f_1)$  which is a secondary acoustic wave, and the sound (difference tone) of frequency  $(f_2 - f_1)$  are generated (refer to drawing 4 (a) and (b)).

[0057] If the ultrasonic wave of frequency  $f_1$  and the ultrasonic wave of frequency  $f_2$  are outputted from the parametric loudspeaker 500, in a audio range, the sound of frequency  $(f_2 - f_1)$  is generable, so that frequency  $(f_2 - f_1)$  may turn into frequency of a audio range at this time. Moreover, like an ultrasonic wave, since directivity is strong, the sound of the frequency  $(f_2 - f_1)$  generated as mentioned above becomes possible to centralize sound on a predetermined part like a spotlight. However, usually, as a parametric loudspeaker is shown in drawing 4 (a) and (b), the ultrasonic wave of different frequency is hardly outputted and it outputs the amplitude modulation wave which is made to modulate the subcarrier of an ultrasonic wave by the modulating signal of a audio range, and is usually obtained.

[0058] Next, the case where an amplitude modulation wave is outputted from a parametric loudspeaker is explained using drawing 4 (c). Usually, the amplitude modulation wave (modulated wave) 501 which is made to modulate a subcarrier by the modulating signal and is obtained contains subcarrier 501a, top wave (upper sideband) 501b, and bottom wave (lower sideband) 501c, as shown in drawing 4 (c).

[0059] If this amplitude modulation wave 501 receives the nonlinear interaction of an acoustic wave, while subcarrier 501a and top wave 501b will carry out nonlinear interference, subcarrier 501a and bottom wave 501c carry out nonlinear interference. Consequently, the modulated wave 502 which is a secondary acoustic wave equivalent to the above-mentioned modulating signal is generable. That is, self-detection of the amplitude modulation wave 501 can be carried out using the nonlinear interaction of an acoustic wave. In this case, since the above-mentioned modulating signal is outputted as a modulated wave 502 which is a secondary

acoustic wave as it is, if it chooses the correspondence number of the audio range used as voice, a sound effect, etc. as the above-mentioned modulating signal and chooses an ultrasonic wave as it at the above-mentioned subcarrier, it will become possible to centralize sound on a predetermined part like a spotlight.

[0060] the sound outputted by this parametric loudspeaker in the game machine of this invention equipped with the parametric loudspeaker mentioned above — the nonlinear interaction of an acoustic wave — \*\*\*\* — only in the field to which the part which a secondary acoustic wave generates, and this secondary acoustic wave are transmitted by things, a game person can hear the sound outputted by this parametric loudspeaker. At this time, the part which a secondary acoustic wave generates serves as a sound source of the imagination which exists in a different position from the above-mentioned parametric loudspeaker, \*\*\*\*\*, and a virtual source. In addition, it does in this way and, as for the virtual source which made it generate, it is possible by enabling it to change the sense of the above-mentioned parametric loudspeaker etc. to make it move.

[0061]

[Embodiments of the Invention] The example of this invention is explained based on a drawing. In addition, below is equipped with two loudspeakers (loudspeaker which is not a parametric loudspeaker), and suppose that the game machine of this invention which can output the sound which the effect of a binaural sound makes by this loudspeaker is explained. In addition, the above-mentioned game machine shall have memorized the sound data to which processing was beforehand performed by the method mentioned above. Of course, the game machine of this invention is not limited to such a game machine.

[0062] Drawing 5 is the front view showing the game machine of this invention typically. In addition, in the example explained below, the case where this invention is applied to pachinko game equipment is shown as a suitable example of the game machine concerning this invention.

[0063] The discharge handle 26 and \*\* which were prepared in the right-hand side of the main part frame 12, the game board 14 included in the main part frame 12, the window frame 16 of the main part frame 12 prepared in the front face of the game board 14, the upper pan 20 and the lower pan 22 prepared in the front face of the main part frame 12 with the window frame 16 down side, and the lower pan 22 are arranged at pachinko game equipment 10.

[0064] Moreover, two or more obstacle nails (not shown) are driven into the front face of the game board 14. In addition, it does not consider as composition which drives in a nail, but the game board 14 is fabricated for a resin material, it is good also as composition implanted so that a metal rod-like structure may be projected in the game board 14 of this resin material at the front of the game board 14, and this invention can be applied also to pachinko game equipment 10 (party contest machine) which was mentioned above. In addition, in this specification, it is a concept also containing a party contest machine in pachinko game equipment 10.

[0065] Furthermore, the discharge handle 26 is formed free [ rotation ] to the main part frame 12, and the game person can advance the pachinko game by operating the discharge handle 26. The discharge motor 28 is formed in the background of the discharge handle 26. When rotation operation of the discharge handle 26 is done by the game person in the direction of a clockwise rotation, power is supplied to the discharge motor 28 and the game sphere stored by the upper pan 20 is discharged one by one by the game board 14.

[0066] The discharged game sphere is guided at the guide rail 30 prepared on the game board 14, moves to the upper part of the game board 14, and after that, changing the travelling direction by the collision with two or more obstacle nails mentioned above, the game board 14 goes caudad and it falls. Moreover, the loudspeaker 46 (46a, 46b) is arranged, and pachinko game equipment 10 is constituted by the lower pan 22 bottom so that the sound which the effect of a binaural sound makes can be outputted by the loudspeaker 46.

[0067] Drawing 6 is the expansion front view showing the game board 14 typically. In addition, the same sign was given to the component shown in drawing 5 mentioned above, and the corresponding component. Moreover, drawing 6 showed what was omitted about the obstacle nail mentioned above.

[0068] The display 32 which is the display which is mentioned later is formed in the center of abbreviation of the front face of the game board 14. Display 52 is formed in the center of the upper part of this display 32. This display 52 consists of for example, 7 segment drops, and an adjustable indication of the common pattern which is display information is given so that change and a halt may be repeated. The sphere passage detectors 55a and 55b are formed in the flank of right and left of display 32. This sphere passage detector 55a or 55b usually suspends the change display of a pattern, after the change display of a pattern is usually started and predetermined carries out time progress in the display 52 mentioned above, when it detects that the game sphere passed through the near. Usually, a pattern is this information that consists of a number, a sign, etc., for example, are signs, such as numbers from "0" to "9", and "\*." When a pattern usually turns into this predetermined pattern, "7", it stops and it is displayed, [ for example, ] Current is supplied to the solenoid 57 (not shown) for driving the movable pieces 58a and 58b prepared in the both sides of right and left of the starting mouth 44 mentioned later, the movable pieces 58a and 58b are driven so that a game sphere may tend to go into the starting mouth 44 and may become it, and the starting mouth 44 is made to be in an open state. In addition, when predetermined time passes after making the starting mouth 44 into an open state, a movable piece is driven, and a game sphere cannot enter easily and it is made to become by making the starting mouth 44 into a synizesis state.

[0069] Four hold lamps 34a-34d are formed in the both sides of right and left of the display 52 mentioned above. Furthermore, the general winning-a-prize mouth 50 is formed in the upper part of display 52. Moreover, the winning-a-prize mouth 38 of a

game sphere is formed in the lower part of the game board 14. Near this winning-a-prize mouth 38, the shutter 40 is formed free [ opening and closing ]. When an adjustable display game changes into a great success state, a shutter 40 is driven by the solenoid 48 (not shown) so that it may be in an open state.

[0070] The general winning-a-prize mouths 54a and 54b are formed in the both sides of right and left of the display 32 mentioned above. Furthermore, the general winning-a-prize mouths 54c and 54d are formed in the both sides of right and left of the display 32 lower part. Moreover, the winning-a-prize mouths 56a and 56b are specially formed in the edge of right and left of the game board 14, and the winning-a-prize mouths 56c and 56d are specially formed in the both sides of right and left of the winning-a-prize mouth 38. <BR> [0071] Moreover, the starting mouth 44 which has the sphere detection sensor 42 used as the opportunity which shifts to a change display state in the plurality which the adjustable display game mentioned later is started and is displayed on display 32, for example, the pattern which are three identification information, is formed. The winning-a-prize mouth 38 mentioned above, the starting mouth 44, the general winning-a-prize mouths 54a-54d, and when a game sphere wins specially a prize of the winning-a-prize mouths 56a-56d, it is made as [ pay / the lower pan 22 / a number of game spheres beforehand set up according to the kind of winning-a-prize mouth ].

[0072] The rolling flare-part material 60a and 60b for guiding the path of a game sphere in the predetermined direction is also formed in the both sides of right and left of display 32 further again. Moreover, the ornament lamps 36a and 36b are formed in the outside upper left-hand side and outside upper right-hand side of the game board 14.

[0073] In addition, even if the portion which displays the production picture later mentioned in the display 32 mentioned above consists of a liquid crystal display panel, it may consist of the Braun tube. Moreover, in the game board 14 of the pachinko game equipment 10 which is a game machine, although it showed the case where it was prepared in the front center of abbreviation, if display 32 is a position which a game person can see, it is good in the example mentioned above, also as forming display 32 in the position of what of a game machine.

[0074] Furthermore, the thing equipped with the liquid crystal screen other than a pattern display means to display a pattern also in pachislot game equipment also exists, and such pachislot game equipment makes the game production screen same in the liquid crystal screen as pachinko game equipment display, and tends to raise idea nature in recent years. Therefore, suppose that this invention is applied also in the pachislot game equipment which has such a liquid crystal screen.

[0075] Drawing 7 is the block diagram showing the control circuit of the pachinko game equipment which is the example of this invention.

[0076] The discharge handle 26 mentioned above is connected to the interface-circuitry group 62 of a control circuit 60, and the interface-circuitry group 62 is connected to the input/output bus 64. After the angle signal which shows the

rotation angle of the discharge handle 26 is changed into a predetermined signal by the interface-circuitry group 62, it is supplied to an input/output bus 64. The input/output bus 64 is made as [ input / output and / a data signal or an address signal / by the central-process circuit (CPU is called hereafter) 66 ]. Moreover, the sphere detection sensor 42 is also connected to the interface-circuitry group 62 mentioned above, and when a game sphere passes the starting mouth 44, the sphere detection sensor 42 supplies a detecting signal to the interface-circuitry group 62. Furthermore, the sphere passage detector 55 is also connected to the interface-circuitry group 62, and the sphere passage detector 55 supplies a detecting signal to the interface-circuitry group 62, when it detects that the game sphere passed through the near.

[0077] ROM (read-only memory)68 and RAM (random access memory)70 are connected to the input/output bus 64 mentioned above. ROM68 memorizes the control program which controls the flow of the whole game of pachinko game equipment. Furthermore, in case an adjustable display game is performed in display 32, ROM68 memorizes the image data of a change display or the change pattern by which it is indicated by halt, the character image data which consists of a dynamic-body object displayed as a production screen, the background-image data which constitute the background of display 32, and animation image image data, and memorizes the initial data for performing a control program, the program which controls the blink operation pattern of the ornament lamp 36.

[0078] ROM68 memorizes the sound data used as BGM, a sound effect, voice, etc. further. In addition, the sound data which ROM68 memorizes may memorize the sound data which do not necessarily need to be sound data made to generate the sound which the effect of a binaural sound makes altogether, and are made to generate the sound which especially the effect of a binaural sound does not produce. Moreover, as for the sound data made to generate the sound which the effect of the above-mentioned binaural sound makes, it is desirable that it is sound data used as the sound which generates a virtual source. Furthermore, when the sound data with which ROM68 serves as sound which generates a virtual source are memorized, as for the sound data used as the sound which generates the above-mentioned virtual source, it is desirable that it is sound data made to generate suction sound.

[0079] When indicating the pattern by change in display 32, in case the pattern image data mentioned above indicates by halt, it is used, and it contains the image data according to various display modes, for example, the expanded picture, the reduced picture, the picture which deformed. Moreover, the character image data and background-image data which consist of a dynamic body object mentioned above, and animation image image data are for displaying on display 32 by making into a screen picture a dynamic image, static picture images, or these pictures that were combined, as a game is directed. Furthermore, the character image data which consists of a dynamic body object mentioned above contains the image data corresponding to each of operation that operation of a character should be displayed.

[0080] Moreover, RAM70 memorizes the value of the flag used by the program mentioned above, or a variable. For example, the accumulation reach data, the number of accumulation change, and the number of times of accumulation great success which show the history of the result of an operation by new input data and new CPU66 or a game are memorized.

[0081] By calling and performing a predetermined program, CPU66 which is a control section performs data processing, and controls transmission and others by making into a correspondence number the character image data and background-image data which consist of a dynamic body object based on the result of this data processing, animation image data, change pattern image data, and sound data. In addition, although not illustrated, DSP mentioned above decides to be contained in CPU66.

[0082] Moreover, CPU66 reads the image data of the change pattern which is the identification information mentioned above, and it controls, or it controls it so that a halt indication of the mutual combination state of the pattern which are two or more identification information is given to predetermined timing in display 32 so that a change indication of the pattern is given in display 32.

[0083] Furthermore, the interface-circuitry group 72 is also connected to the input/output bus 64. Display 32, a loudspeaker 46 (46a, 46b), the discharge motor 28, the solenoid 48, the hold lamp 34, and the ornament lamp 36 are connected to the interface-circuitry group 72, and the interface-circuitry group 72 supplies a driving signal and drive power to it that each of the equipment mentioned above according to the result of data processing in CPU66 should be controlled.

[0084] The screen picture of the display 32 which is a display consists of a production picture as which the discernment picture as which a change pattern is displayed, and a production screen are displayed, and is displayed as one picture by piling up these two pictures by control of CPU66, and compounding.

[0085] Thus, especially, by making a production picture into a background, the scene which piles up and compounds two or more pictures, for example, a pattern picture and a production picture, and on which a pattern is changed can be directed, and a colorful display form becomes possible at a twist.

[0086] It is for carrying out the opening-and-closing drive of the \*\*\*\* shutter 40 mentioned above, and a solenoid 48 shows the number of times from which the combination of the pattern displayed on display 32 became effective, and the ornament lamp 36 blinks or turns on the hold lamp 34 for it to show a game person that, when it becomes a time of a game being becoming it a great success, and reach.

[0087] A control section consists of CPUs66 mentioned above, a display consists of display 32, and a game machine consists of pachinko game equipment 10.

[0088] The variable used for below in CPU66 which had started pachinko game equipment 10 and was mentioned above shall be initialized by the predetermined value, and shall carry out regular operation. Moreover, about the change direction of the last change pattern, and/or sound other than the sound relevant to change of



fluctuation velocity, although explanation is omitted, suppose that BGM, a sound effect, voice, etc. are outputted suitably according to a game situation.

[0089] Drawing 8 is a flow chart which shows the sub routine which detects the game sphere performed in the control circuit 60 mentioned above. In addition, this sub routine is called and performed to predetermined timing from the control program which controls the pachinko game of the pachinko game equipment 10 currently performed beforehand.

[0090] First, it detects whether it is the no by which the game sphere went into the winning-a-prize mouth (Step S11). This winning-a-prize mouth is the general winning-a-prize mouth 50, 54a-54d, and the special winning-a-prize mouths 56a-56d in the example shown in drawing 6 mentioned above, for example. In Step S11, when it judges that the game sphere went into the winning-a-prize mouth, processing which pays out a number of game spheres beforehand defined according to the kind of winning-a-prize mouth is performed (Step S12).

[0091] Next, it judges whether the game sphere went into the starting mouth (Step S13). This starting is the starting mouth 44 in the example shown in drawing 6 mentioned above, for example. In this step S13, when it judges that the game sphere went into the starting mouth, the first adjustable display game mentioned later is performed (Step S14).

[0092] Furthermore, it judges whether the game sphere passed the sphere passage detector (Step S15). This sphere passage detector is the sphere passage detectors 55a and 55b in the example shown in drawing 6 mentioned above, for example.

[0093] In this step S15, when a sphere passage detector is judged that the game sphere passed, as mentioned above, processing which usually indicates the pattern by change in display 52 is performed (Step S16). In addition, as mentioned above, when are indicated by change and it becomes [ at which the pattern usually stopped ] a predetermined pattern, a game sphere tends to go into the starting mouth 44, and it is made to become it, as the movable pieces 58a and 58b are driven and it will be in an open state about the starting mouth 44.

[0094] Next, the adjustable display game in this invention is concretely explained using a drawing. Drawing 9 is a flow chart which shows the sub routine which performs adjustable display game processing called and performed in Step S14 mentioned above, and drawing 10 is a flow chart which shows processing until all change patterns stop, after serving as reach in the above-mentioned adjustable display game. Moreover, drawing 11 (a) - (d) and drawing 12 (a) - (d) is explanatory drawing showing an example of the picture displayed on display, when the adjustable display game is performed.

[0095] By calling this sub routine, the fixed screen currently displayed in display 32 is usually changed to a screen, and an adjustable display game is started. An adjustable display game is a game which imitated the game made in a slot machine here. After displaying two or more patterns which are two or more identification information on display 32 and displaying that the each is changed, When the

combination of the pattern when these patterns displaying that it stops one by one to predetermined timing, and stopping all the patterns turns into a predetermined combination. It is a game for shifting a pachinko game to a state advantageous to a game person, and is the game performed considering this change display and a halt display as one distance.

[0096] For example, as one group of the pattern which consists of "1", "2", —, 12 numbers that consist of "12", these 12 patterns are displayed on display 32 one by one, and it is displayed that the pattern itself changes, displaying that the pattern moves. For example, in display 32, after displaying that "1" of a pattern scrolls down to the upper shell of display 32, it displays that "2" of a pattern is scrolled from a top to the bottom, and it is displayed that "3" of a pattern is continuously scrolled to the bottom of an upper shell similarly. After displaying "from 1" to "12" of a pattern in such a mode, it displays that "1" of a pattern is scrolled again, and the same display is repeated successively. [ of a pattern ]

[0097] By displaying a pattern like a display 32 smell lever, while a pattern is scrolled from "2" to "3" from "1" to "2", a pattern will be displayed to change one by one to "12", and next, "1" will be displayed again. Thus, the mode which displays a pattern that the pattern itself changes one by one is called change display, moving the position of one pattern. Moreover, the mode which is made to stop a certain pattern and is displayed is called halt display.

[0098] In addition, the pattern displayed in case the pattern belonging to one group is displayed on display 32 is good also as not being restricted only to one pattern belonging to a group, and displaying simultaneously plurality, for example, 2-3 patterns. For example, while indicating the pattern "5" by change at display 32, a part or the whole of a pattern "4" is indicated by change under the pattern "5", and it is good above a pattern "5" also as indicating a part or the whole of a pattern "6" by change. In addition, the group of the pattern mentioned above is a concept corresponding to the group of the pattern displayed on one reel used in a slot machine.

[0099] Furthermore, when an adjustable display game is performed in display 32, the pattern belonging to each of two or more groups is displayed. For example, when displaying each of the pattern belonging to three groups on a longitudinal direction, the pattern belonging to one group is displayed on the left-hand side of display 32, the pattern belonging to other groups is displayed in the center of display 32, and the pattern belonging to the remaining groups is displayed on the right-hand side of display 32.

[0100] Thus, by displaying the pattern which is identification information, two or more identification information will be displayed on the display 32 which is a display. For example, so that only one pattern in the pattern belonging to one group may always be displayed, when indicating by change, one pattern will be displayed on display 32 by three patterns, i.e., left-hand side, one pattern will be displayed in the center, and one pattern will be displayed on right-hand side. moreover — displaying

the pattern which the number of the groups at the time of an adjustable display game being performed is not restricted to three, and belongs to two or more groups other than three on display 32 — also carrying out — it is good

[0101] As mentioned above, two or more patterns (change pattern), i.e., two or more identification information, will be displayed on the display 32 which is a display by displaying a pattern in this way. Furthermore, when we decided to display that it is good also as displaying two or more patterns about the pattern belonging to one group as mentioned above, for example, the three patterns belonging to one group are simultaneously indicated by change and it displays about three groups, a change indication of a total of nine patterns will be given at display 32.

[0102] When all the patterns by which it was indicated by change are indicated by halt to predetermined timing after indicating the pattern belonging to two or more groups by change, the combination of these patterns agrees about a predetermined combination, and it shifts to the state where a pachinko game becomes advantageous to a game person noting that an adjustable display game wins great success, when indicated by halt.

[0103] For example, while displaying the pattern belonging to three groups on display 32 When indicating the one change pattern by halt about 1 set, a halt indication of the pattern belonging to one group is given by "7." When a halt indication also of the pattern belonging to other groups and the pattern which it is indicated by halt by "7" and belongs to the remaining groups is given by "7" The combination of a pattern is combination "7"—"7 predetermined". — It agrees in "7", and it shifts to the state where a pachinko game becomes advantageous to a game person noting that an adjustable display game wins great success. It is made easy to open wide the shutter 40 of the winning-a-prize mouth 38 which supplies current to the solenoid 48 mentioned above, and is prepared in the front face of the game board 14, and to go a game sphere into the winning-a-prize mouth 38, when it shifts to the state where it is becoming it a great success, and becomes advantageous to a game person.

[0104] Moreover, when this adjustable display game is performed, the production screen by the background image, the character picture, etc. is also displayed on display 32. In addition, when the adjustable display game by which the fixed screen mentioned above is performed in display 32 is not performed but only the pachinko game is advancing in pachinko game equipment 10, the screen displayed on display 32 is said. Moreover, the production screen which will be displayed on display 32 by the time it results when the adjustable display game separated from the screen, and it changes into a state or changes into a great success state after a change indication of the pattern which an adjustable display game is started in display 32, and is displayed on display 32 is given is usually said.

[0105] A start of the adjustable display game mentioned above performs internal lottery processing by data processing of CPU66 first (Step S200). It is the processing set beforehand the combination of the pattern when this internal lottery

processing indicating by halt all the patterns that belong to two or more groups by which it was indicated by change, and deciding a pattern, and CPU 66 carries out processing with the change display of a pattern, and a halt display so that it may mention later, and a halt indication of the pattern may be given in the combination of the pattern defined by internal lottery processing.

[0106] Next, the screen configuration information of the selected background image is generated by RAM70 (Step S201). That is, after the above-mentioned internal lottery processing is performed, according to the result of internal lottery processing, the advance situation of an adjustable display game, etc., the control program which chooses a background image is called and performed from ROM68 by CPU66.

[0107] Next, the screen configuration information of the background image chosen by CPU66 based on the result by which it might perform is generated by RAM70 by CPU66 at any time. Especially as the above-mentioned background image, although not limited, as shown in drawing 11, the picture which shows a pool, the picture which shows the sky as shown in drawing 12 can be mentioned, for example. Such a picture is suitably chosen by CPU based on the advance situation of an adjustable display game, and the result of the above-mentioned internal lottery processing.

[0108] Next, the screen configuration information of the character picture which consists of a selected animal object is generated by RAM70 (Step S202). That is, based on the execution result of the above-mentioned control program, the screen configuration information of the character picture chosen by CPU66 is generated by RAM70.

[0109] Movement can be given and displayed on a character picture by controlling so that the head position of a character picture shifts by predetermined movement magnitude with the period (frame span) of the fixed interval for every grade for 1 / 30 seconds at this time, for example, 60 1/seconds. In addition, about the picture which shows a character, it does not always necessarily need to be displayed on display.

[0110] Subsequently, the screen configuration information of the change pattern which is identification information is generated by RAM70 by CPU66 based on the execution result of the above-mentioned control program (Step S203).

[0111] The screen configuration information of the picture used as each pattern which constitutes the above-mentioned change pattern It is based on the control program mentioned above. by CPU66 for example, 1 / 60 seconds, and the period (frame span) of the fixed interval for every 30-second grade The change display of a change pattern can be performed by controlling the picture which it is made to shift by predetermined movement magnitude, and serves as each change pattern in the head position of screen configuration information about the picture used as the change pattern which has the same identification information to generate one by one in predetermined sequence.

[0112] Furthermore, since the fluctuation velocity of a change pattern is controllable by adjusting a frame span, the head position of read-out of screen configuration

information, etc., in a background image, it is also possible to smooth change of a change pattern and to aim at fusion for a background image and a change pattern according to the tale developed.

[0113] In addition, it is possible to also make ROM68 display that the configuration of this change pattern changes with time during a change display by making two or more image data used as a different configuration memorize, reading from CPU66 at any time, and transmitting to display 32 about the same change pattern.

[0114] Subsequently, in Steps S201-S203, each image data corresponding to the above-mentioned screen configuration information is read from ROM68 by CPU66 based on the screen configuration information generated by RAM70. Then, after considering as the image data displayed on display 32, it is transmitted and displayed on display 32 by the priority as which it is displayed in the above-mentioned screen configuration information, and the information about a position etc. (Step S204).

[0115] In Steps S206 and S208 mentioned later, after a halt indication of a left change pattern and the right change pattern is given, processing of Steps S201-S204 mentioned above has the same change pattern on either side, judges whether it is no (Step S210), and it is repeatedly performed until it judges that it became reach (it is the same). By repeating and performing such processing, it can be displayed that the pattern can be indicated by change so that it may scroll in a predetermined mode, and a character picture also carries out predetermined operation.

[0116] Next, it judges whether it is the timing which indicates the pattern which belongs to one group among three groups by halt (Step S205). When it is judged that it is not the timing which indicates by halt, processing is returned to Step S201. On the other hand, when it distinguishes that it is the timing which indicates the left change pattern by halt, the left change pattern is indicated by halt (Step S206).

[0117] Next, it judges whether it is the timing which indicates the pattern belonging to one of two groups which remained by halt (Step S207). When it is judged that it is not the timing which indicates by halt, processing is returned to Step S201. On the other hand, when it distinguishes that it is the timing which indicates the right change pattern by halt, the right change pattern is indicated by halt (Step S208).

[0118] Then, it is judged whether the change pattern of the stopped right and left is the same (Step S210). And when it is judged that a change pattern on either side is the same, the sub routine of the reach screen-display processing shown in drawing 10 is performed (Step S29). In addition, about the sub routine of reach screen-display processing, it will explain in full detail later.

[0119] On the other hand, when a pattern on either side is judged not to be the same in Step S210 next, it judges whether it is the timing which indicates the central pattern by halt (Step S211). When a central pattern is judged not to be the timing which indicates by halt, processing is returned to Step S201. On the other hand, when a central pattern is judged to be the timing which indicates by halt, the central change pattern is indicated by halt (Step S212), and this sub routine is ended.

[0120] In addition, although three change patterns explained to the order of the left, the right, and a center the case where it was indicated by halt, by drawing 9 , in an adjustable display game, especially the sequence that a halt indication of the change pattern is given is not limited.

[0121] Next, the sub routine of reach screen-display processing is explained using drawing 10 . In Step S29 of an adjustable display game manipulation routine mentioned above, if the sub routine of reach screen-display processing is performed, the screen configuration information of the background image which was the same as that of Step S201 shown in drawing 9 , and was chosen first will be generated by RAM70 (Step S291).

[0122] In addition, in this invention, the background image chosen as a reach state may be the usually same picture as the background image in a screen, and may be a different picture. Especially as such a background image, although not limited, as shown in drawing 11 , the background image which shows a pool, the background image which shows the sky as shown in drawing 12 can be mentioned, for example.

[0123] Next, the screen configuration information of the YARAKUTA picture which was the same as that of Step S202 shown in drawing 9 , and was chosen is generated by RAM70 (Step S292). In addition, the character picture chosen may be the usually same picture as the character picture in a screen, and may be a different picture.

[0124] Next, screen configuration information is generated in the mode which indicates the pattern on either side by halt, and indicates the central pattern by change (Step S293). In addition, the picture of the change pattern chosen may be the usually same picture as the change pattern in a screen, and may be a different picture.

[0125] Subsequently, in Steps S291-S293, each image data corresponding to the above-mentioned screen configuration information is read from ROM68 by CPU66 based on the screen configuration information generated by RAM70. Then, after considering as the image data displayed on display 32, it is transmitted and displayed on display 32 by the priority as which it is displayed in the above-mentioned screen configuration information, and the information about a position etc. (Step S294).

[0126] Next, it judges whether it is the timing to which the change direction and/or fluctuation velocity of the last change pattern are changed (Step S295). In addition, a judgment whether it is the timing to which the change direction and/or fluctuation velocity of the last change pattern are changed can be made by the means shown below. Namely, the production picture beforehand displayed in case the change direction and/or fluctuation velocity of the last change pattern are changed When a frame number until this production picture is displayed, and the frame number which measures time etc. and was measured are displayed about (for example, a background image, a character picture), etc., Or when the measured time passes, in Step S295, it can carry out by making ROM68 memorize the control program judged to be the timing to which the change direction and/or fluctuation velocity of the last

change pattern are changed.

[0127] In Step S295, when it is judged that it is the timing to which the change direction and/or fluctuation velocity of the last change pattern are changed next, the last change pattern is indicated by change in the mode from which the change direction and/or fluctuation velocity of the last change pattern change (Step S296).

[0128] In order to change the change direction of the last change pattern, it can carry out by making the head position of read-out of screen configuration information etc. adjust. moreover — for speeding up the fluctuation velocity of the above-mentioned last change pattern when changing the fluctuation velocity of the last change pattern for example, — the head position of read-out [ \*\*\*\* / speeding up a frame span ] of each screen configuration information etc. — an interval — it can carry out by setting up widely

[0129] When processing of Step S206 is performed next, the sound data made to generate the change direction of the last change pattern and/or the sound relevant to change of fluctuation velocity are chosen (Step S297). That is, CPUs66 are the change direction of the last change pattern, and/or the sound relevant to change of fluctuation velocity, and choose and read the sound data made to generate the sound which the effect of a binaural sound makes from the sound data memorized by ROM68. Consequently, the sound based on the above-mentioned sound data will be outputted by the loudspeaker. In addition, about the sound which the change direction of the above-mentioned last change pattern and/or change of fluctuation velocity, and the effect of a binaural sound make, and these relation, it will explain in full detail later using a drawing.

[0130] In Step S295, when it is judged that it is not the timing to which the change direction and/or fluctuation velocity of the last change pattern are changed, or when processing of Step S297 is performed, it judges whether it is the timing which indicates the last change pattern by halt (Step S298). When the last change pattern is judged not to be the timing which indicates by halt, processing is returned to Step S291. On the other hand, when it is judged that it is the timing which indicates the last change pattern by halt in Step S298, the last change pattern is indicated by halt (Step S299), and this sub routine is ended.

[0131] Next, in an adjustable display game, the screen picture displayed on a display is explained using drawing 11 (a) – (d) and drawing 12 (a) – (d). Drawing 11 (a) The tale developed in the screen picture shown in – (d) is a tale that my ton of a pig enjoys swimming, in a pool, and the tale developed in the screen picture shown in drawing 12 (a) – (d) is a tale of my ton of a pig riding on a balloon and venturing, in the sky.

[0132] In addition, in drawing 11 (a) – (d) and drawing 12 (a) – (d), my ton of the pig displayed near the number surrounded with a circle currently displayed on the screen and this number is a change pattern. Thus, the method of making display in one the number which is identification information, and a character, and making it into a change pattern is one of the effective production methods which can give

impact and an unexpected feeling, without not making a game person memorize the unnatural pod sense of incongruity of the above-mentioned change pattern and the above-mentioned production picture by uniting a change pattern and a production picture, but making the interest over a game decline. In the explanation about drawing 11, the number attached to the head only also makes my ton of "1" my ton of "1", for example. Moreover, in the explanation about drawing 12, my ton who rode on the balloon to which the number of "1" is attached, for example is only also made my ton of "1."

[0133] Moreover, in drawing 11 (a) - (d) and drawing 12 (a) - (d), after a change indication of 3 sets of change patterns is given horizontally, while being indicated by halt in the state of alignment, the matrix of the pattern which consists of three lines and three trains is formed by displaying three patterns for each class. And combination predetermined in three patterns by which it was indicated by halt in the central train "7" - "7" - It shifts to the state where a pachinko game becomes advantageous to a game person noting that an adjustable display game wins great success, when it agrees in "7."

[0134] First, drawing 11 is explained. The screen picture shown in drawing 11 (a) is a screen picture displayed before being in a reach state. That is, in the course of a pool top, my ton of "1", my ton of "2", and my ton of "3" are swimming toward the left side by side. The same is said of a central course and a lower course, in the central course, my ton of "4", my ton of "5", and my ton of "6" are swimming toward the left side by side, and in the lower course, my ton of "7", my ton of "8", and my ton of "9" are swimming toward the left side by side.

[0135] Although not illustrated, if my ton of "1" disappears from a screen left end next, for example in an upper course, my ton of "4" will appear from a screen right end. The same is said of a central course and a lower course. Therefore, by the screen picture shown in drawing 11 (a), a change indication of the change pattern will be given toward the left from the right.

[0136] then, my ton swimming in the upper course -- \*\* -- my ton swimming in the lower course -- \*\* -- swimming is stopped in order, respectively That is, a halt indication of the change pattern of a screen top and the change pattern of the screen bottom is given. Consequently, my ton of "7" is displayed in the center of an upper course, and the center of a lower course, and it will be in a reach state. after becoming reach -- my ton of a central course -- \*\* -- as shown in drawing 11 (a), it continues swimming toward the left

[0137] next, it is shown in drawing 11 (b) -- as -- a central course -- setting -- water -- the right -- outflow and my ton -- \*\* -- the picture passed rightward is displayed, the sound which the effect of a binaural sound makes is outputted from it, simultaneously a loudspeaker, and the sound expressing signs that water is sucked in with the pump from a game person's right-hand side is emitted That is, sound which suction sound has made from a game person's right-hand side is emitted by the sound which the effect of a binaural sound makes so that the change direction



of a change pattern may change rightward from the left and may be connected with the change. The sound which expresses signs that water is sucked in with the pump, at this time is suction sound.

[0138] While a game person can recognize change of the change direction of the last change pattern certainly not only by the visual sense but by the acoustic sense by doing in this way, the presence the game person itself is on that occasion can be memorized, and it can be immersed in feeling by which the last change pattern is actually absorbed from a game person's left-hand side.

[0139] next, it is shown in drawing 11 (c) — as — a central course — setting — water — the left — outflow and my ton — \*\* — the picture in which it swims fast leftward is displayed, the sound which the effect of a binaural sound makes is outputted from it, simultaneously a loudspeaker, and the sound expressing signs that water is sucked in with the pump from a game person's left-hand side is emitted. That is, sound which suction sound has made from a game person's right-hand side is emitted by the sound which the effect of a binaural sound makes so that the change direction of a change pattern may change leftward from the right and may be connected with the change.

[0140] then, my ton of a central course — \*\* — the picture in which passes rightward or it swims fast leftward displays — having — my ton from a loudspeaker — \*\* — if the direction in which it swims changes, the sound which the effect of a binaural sound makes is outputted and the sound expressing signs have sucked in water with the pump will be emitted so that it may relate to the change and my ton who is swimming in the central course as shown in drawing 11 (d) — \*\* — if swimming is stopped, all central trains will serve as my ton of "7". Namely, combination predetermined in the combination of the pattern of the change pattern by which it was indicated by halt "7" — "7" — It agrees in "7", and will be in a great success state, and the picture to which my ton does banzai will be displayed.

[0141] Next, drawing 12 is explained. The screen picture shown in drawing 12 (a) is a screen picture displayed before being in a reach state. That is, my ton of "1", my ton of "2", and my ton of "3" are riding and progressing with the balloon toward the left with the screen up side side by side. Moreover, my ton of "5", my ton of "6", and my ton of "7" are riding and progressing with the balloon toward the left in the center of a screen side by side, and my ton of "7", my ton of "8", and my ton of "9" are riding and progressing with the balloon toward the left with the screen down side side by side.

[0142] Although not illustrated, if my ton of "1" disappears from a screen left end next, my ton of "4" will appear from a screen right end with the screen up side, for example. The same is said of the center of a screen, and the screen bottom. Therefore, by the screen picture shown in drawing 12 (a), a change indication of the change pattern will be given toward the left from the right.

[0143] then, my ton displayed on the screen bottom — \*\* — my ton displayed in the center of a screen — \*\* — it stops in order, respectively. That is, a halt

indication of the change pattern of a screen top and the change pattern of the center of a screen is given. Consequently, my ton of "7" is displayed in the center and the center of a screen of a screen top, and it will be in a reach state. after becoming reach — my ton of the screen bottom — \*\* — as shown in drawing 12 (a), it progresses toward the left

[0144] next, it is shown in drawing 12 (b) — as — the screen bottom — setting — the right from the left — a blow — blowing — my ton — \*\* — the picture flown leftward is displayed, the sound which the effect of a binaural sound makes is outputted from it, simultaneously a loudspeaker, and the sound expressing signs that a blow blows from a game person's right-hand side is emitted That is, the sound which expresses signs that a blow blows from a game person's right-hand side, with the sound which the effect of a binaural sound makes is emitted so that the fluctuation velocity of a change pattern may become quick and may be connected with change of the fluctuation velocity.

[0145] While a game person can recognize change of the change direction of the last change pattern certainly not only by the visual sense but by the acoustic sense by doing in this way, the presence the game person itself is on that occasion can be memorized, and it can be immersed in feeling by which the last change pattern is actually absorbed from a game person's left-hand side.

[0146] next, it is shown in drawing 12 (c) — as — the screen bottom — setting — the right from the left — a blow — blowing — my ton — \*\* — the picture flown rightward is displayed, the sound which the effect of a binaural sound makes is outputted from it, simultaneously a loudspeaker, and the sound expressing signs that a blow blows from a game person's left-hand side is emitted That is, the sound which expresses signs that a blow blows from a game person's left-hand side, with the sound which the effect of a binaural sound makes is emitted so that the change direction of a change pattern may change rightward from the left and may be connected with the change.

[0147] then, my ton of the screen bottom — \*\* — the picture which is flown leftward or is flown rightward displays — having — my ton from a loudspeaker — \*\* — if the direction flown changes, the sound which the effect of a binaural sound makes is outputted and the sound expressing signs that a blow blows will be emitted so that it may relate to the change and my ton displayed on the screen bottom as shown in drawing 12 (d) — \*\* — a halt displays my ton of "7" in the center of the screen bottom "7"-"7"-"8 [ namely, ] which is the combination of the pattern from which the combination of the pattern of the change pattern by which it was indicated by halt will be in a blank state" — agreeing — a blank state — becoming — my ton — \*\* — the picture which carries out "\*\*\*\*\*" is displayed

[0148] In this invention, especially the change direction of a change pattern may not be limited, may be horizontal, and may be the perpendicular direction. Moreover, the change direction of two or more change patterns before becoming reach, and the change direction of the last change pattern after becoming reach do not necessarily

need to be parallel. However, as this invention shows to drawing 11 and drawing 12 , as for the change direction of the last change pattern after giving a change indication of two or more change patterns before becoming reach horizontally and becoming reach, it is desirable that it is the same direction as the change direction or opposite direction of the above-mentioned plurality. It is because movement of a game person's eyes is relieved and neither displeasure nor sense of incongruity is given, since the change direction of two or more change patterns before being in a reach state, and the change direction of the last change pattern after being in a reach state are parallel. Consequently, a game person can enjoy a game over a long time, without sensing tiredness to a game.

[0149] Moreover, about change of the change direction of a change pattern, and the output of the sound which the effect of the binaural sound relevant to the change makes, it is also possible to make it shown below. That is, the sound from which a game person's front to a blow blows off using the sound which the effect of a binaural sound makes when the change direction of a this [ when it reduces gradually and is indicated by change so that the last change pattern may be absorbed from this side of a screen to the back ] last change pattern is going to the back from this side and the change direction of this last change pattern changes from the back to this side can generate. By doing in this way, not only by the visual sense but by the acoustic sense, change of the change direction of the last change pattern can be recognized, the last change pattern will further blow off from a game person's front, and a game person will memorize presence the game person itself is on that occasion and which has a cubic effect more.

[0150] Moreover, it is possible to also generate the suction sound from a game person's front using the sound which the effect of a binaural sound makes when the change direction of the this [ when it expands gradually and is indicated by change so that the last change pattern may blow off from the back of a screen to this side ] last change pattern is going to this side from the back and the change direction of this last change pattern changes to the back from this side.

[0151] Moreover, for example, by generating suction sound from a game person's right-hand side at the same time it speeds up the fluctuation velocity of this last change pattern, when the change direction of the last change pattern is the right Although the sound which the effect of a binaural sound makes can be outputted so that it may be connected with change of the fluctuation velocity of the last change pattern While fully speeding up the fluctuation velocity of the last change pattern at this time, the sound which the effect of a binaural sound makes is outputted greatly. It is also possible to be able to generate the suction sound expressing signs that it has absorbed strongly, and to seldom speed up the fluctuation velocity of the last change pattern, but to output small the sound which the effect of a binaural sound makes, and to generate the suction sound expressing signs that it has absorbed weakly. That is, it is possible to associate change of the fluctuation velocity of the last change pattern and the loudness level which the effect of the binaural sound to

output produces.

[0152] Moreover, in this invention, after especially the number of times from which the change direction and/or fluctuation velocity of the last change pattern change after becoming reach is not limited and serves as [ and ] reach, the change direction and/or fluctuation velocity of the last change pattern do not necessarily need to change. About the number of times from which the change direction of the last change pattern and/or fluctuation velocity change, it is possible to set up suitably according to an advance situation, a displayed production picture of an adjustable display game.

[0153] As mentioned above, the presence by the binaural sound can be given by the production expression method of the game machine of this invention, and a game machine, making change of the last change pattern check by looking firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and the malaise memorized to a game person, a game person's feeling of fullness and feeling of achievement can be uplifted, and fast improvement in interest can be aimed at.

[0154] Although the case where ROM68 and RAM70 of pachinko game equipment 10 memorized the program which controls a pachinko game, the program for detecting the game sphere shown in drawing 8 , the program which performs the adjustable display game shown in drawing 9 in the example mentioned above was shown It is good also as a server and a terminal having data used by the programs mentioned above when it considered as the composition which can perform a pachinko game when an operator operates the terminal connected to the server possible [ communication ], or these programs.

[0155] Thus, when it considers as the composition which consists of a server and a terminal, the server memorizes beforehand the program which controls a pachinko game, the program for detecting the game sphere shown in drawing 8 , the program which performs the adjustable display game shown in drawing 9 , and transmits these programs to a terminal to predetermined timing.

[0156] On the other hand, a terminal once memorizes these transmitted programs and advances a pachinko game by beginning to read the program which memorized suitably and performing it. Moreover, it is good also as performing the program which controls a pachinko game, the program for detecting the game sphere shown in drawing 8 , the program which performs the adjustable display game shown in drawing 9 by the server side, and transmitting to a terminal by making into a control signal or control information the instruction generated according to the execution result. In this case, a terminal chooses the picture for performing a pachinko game according to the control signal and control information which were transmitted, generates it, or displays the picture on a display.

[0157] Drawing 13 is the front view showing an example of the terminal when considering as composition which was mentioned above.

[0158] In the example shown in drawing 13 , a terminal 100 is a general-purpose personal computer, and a game person's alter operation is inputted from the input unit 102 connected to the terminal 100, for example, a keyboard. Moreover, the control section 130 of a terminal 100 consists of CPU108, ROM110, and RAM112 grade which are mentioned later, and the program which controls a pachinko game in this control section 130, and the program which controls an adjustable display game are performed.

[0159] This control section 130 also has the communication interface circuit 120 (not shown), and a control section 130 performs communication with the server later mentioned through a communication interface circuit 120, based on the control signal or control information transmitted from a server, a program, and data, a pachinko game is controlled or it controls an adjustable display game. Moreover, the loudspeaker 118 is connected to the control section 130, and it is possible to output the sound which the effect of a binaural sound makes by the loudspeaker 118.

[0160] Furthermore, the game machine picture which imitated pachinko game equipment as shown in the display 116 connected to the terminal 100 at drawing 13 is displayed, and a pachinko game is performed on this game machine picture. The display 132 by which the adjustable display game mentioned above on this game machine picture is performed is displayed as a picture. In this display 132, the picture of the pattern which is the identification information which was mentioned above is displayed.

[0161] Moreover, when the sub routine shown in drawing 9 and a sub routine as shown in drawing 20 , drawing 22 , or drawing 27 are performed in a control section 130 so that it may mention later, after becoming reach in a display 132, the sound which the effect of the above-mentioned binaural sound makes will be outputted so that the change direction and/or the fluctuation velocity of a last change pattern which determines whether to become great success change and it may be connected with the change.

[0162] Drawing 14 is the front view showing other examples of a terminal. In addition, the same sign was given to the component shown in drawing 13 , and the corresponding component. The example of drawing 14 shows the carried type terminal 140, and a game person's alter operation is inputted from the input unit 102 prepared in the terminal 140, for example, a switch. Moreover, the control section 130 (not shown) is formed in the interior of a terminal 140, it consists of CPU108, ROM110, and RAM112 grade which are mentioned later, and the program which controls a pachinko game and an adjustable display game in this control section 130 is performed. Moreover, the loudspeaker 118 is connected to the control section 130, and it is possible to output the sound which the effect of a binaural sound makes by the loudspeaker 118.

[0163] Moreover, this control section 130 also has a communication interface circuit

120 (not shown), and a control section 130 performs communication with the server later mentioned through a communication interface circuit 120, and it controls a pachinko game and an adjustable display game based on the control signal or control information transmitted from a server, a program, and data.

[0164] Furthermore, as the display 116 prepared in the upper surface of a terminal 140 consists of a liquid crystal display panel and it was shown in drawing 14, the game machine picture which imitated pachinko game equipment is displayed, and a pachinko game is performed on this game machine picture. The display 132 by which the adjustable display game mentioned above on this game machine picture is performed is displayed as a picture. In this display 132, the picture of the pattern which is the identification information which was mentioned above is displayed.

[0165] Moreover, when the sub routine shown in drawing 9 and a sub routine as shown in drawing 20, drawing 22, or drawing 27 are performed in a control section 130, after becoming reach in a display 132, the sound which the effect of the above-mentioned binaural sound makes will be outputted so that the change direction and/or the fluctuation velocity of the last change pattern which determines whether become great success change and it may be connected with the change.

[0166] In the terminal 100 shown in drawing 13 as mentioned above, display 116 serves as another object and consists of control sections 130, various kinds of control signal or control information which were transmitted from the server, such as a display-control signal, are supplied to the control section 130 of a terminal 100, and a control section 130 supplies the status signal which generated and generated the status signal based on the supplied control signal or control information to display 116.

[0167] On the other hand, the terminal 140 shown in drawing 14 is constituted united with display 116, and the control signal or control information which were transmitted from the server, such as a display-control signal, are supplied to the control section 130 of a terminal 140, a control section 130 generates a status signal based on the supplied control signal or control information, and it supplies the generated status signal to display 116. The example shown below is applicable even if it is the composition which was united even if it was the composition that the control section and display of a terminal became another object.

[0168] Drawing 15 is the block diagram showing the terminal 100 mentioned above or the composition of 140 (the terminal unit for pachinko games is called hereafter). Moreover, drawing 16 is the block diagram showing the composition of the server 80 which is connected with this terminal unit for pachinko games through a communication line, and supplies various control signals or control information, and data to the terminal unit for pachinko games. In addition, in the terminal unit for pachinko games shown in drawing 15, the same sign was given to the component shown in drawing 7, and the corresponding component.

[0169] The input unit 102, for example, the keyboard, and switch for inputting operation of a game person are connected to the interface circuitry 104 of the

terminal unit 100 for pachinko games, and the interface circuitry 104 is connected to the input/output bus 106. It is made through this input/output bus 106 as [ input / output and / a data signal or an address signal / by the central-process circuit (CPU is called hereafter) 108 ]. ROM (read-only memory)110 and RAM (random access memory)112 are connected to the input/output bus 106. ROM110 and RAM112 memorize a program which is mentioned later, the image data for displaying on display 116, the sound data outputted by the loudspeaker 118. Moreover, the above-mentioned sound data contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0170] Moreover, the interface-circuitry group 114 is also connected to the input/output bus 106. Display 116 and the loudspeaker 118 are connected to the interface-circuitry group 114, and the interface-circuitry group 114 supplies a status signal and a correspondence number to each of display 116 and a loudspeaker 118 according to the result of data processing in CPU108.

[0171] Furthermore, the communication interface circuit 120 is also connected to the input/output bus 106. This communication interface circuit 120 is for carrying out communication with the server 80 later mentioned through communication lines, such as a dial-up line network and a Local Area Network (LAN).

[0172] On the other hand, as shown in drawing 16 , shell composition of the server 80 is carried out with a hard disk drive 88, CPU82, ROM84 and RAM86, and the communication interface circuit 90. A hard disk drive 88 memorizes the program for receiving the program for carrying out communication with the terminal unit for pachinko games, and the information emitted from the terminal unit for pachinko games, the program which controls a pachinko game, and the program which controls an adjustable display game. A communication interface circuit 90 is for carrying out the terminal unit 100 for pachinko games mentioned above through communication lines, such as a dial-up line network and a Local Area Network (LAN), and communication with 140.

[0173] When it considers as composition which was mentioned above, the game machine picture which imitated the pachinko game equipment shown in drawing 13 or drawing 14 is displayed on the display 116 of the terminal unit 100 for pachinko games, and the picture which shows the display 132 for performing the game face of a board, a hold lamp, an ornament lamp, and an adjustable display game and the equipment of the display 152 grade for usually displaying a pattern, and the picture which shows a game sphere are displayed on display 116. In the display 132 for performing this adjustable display game, when an adjustable display game is performed, the picture of the pattern which is identification information is displayed.

[0174] Hereafter, the sub routine by which executive operation is carried out in each of the terminal unit for pachinko games and a server is shown in drawing 17 - drawing 27 . The terminal unit 100 for pachinko games or 140, and a server 80 shall be started beforehand below, and shall carry out regular operation. Moreover, the variable used in CPU108 and CPU82 which were mentioned above shall be initialized

by the predetermined value. Furthermore, each of equipments, such as a winning-a-prize mouth, a starting mouth, and a sphere passage detector, or a game sphere shall be displayed as a picture in display 116. In addition, about the change direction of the last change pattern, and/or sound other than the sound relevant to change of fluctuation velocity, although explanation is omitted, suppose that BGM, a sound effect, voice, etc. are outputted suitably according to a game situation.

[0175] Drawing 17 and drawing 18 are predetermined timing when the terminal unit 100 for pachinko games or 140 is started. A server 80 supplies various kinds of programs memorized by the hard disk drive 88 grade of a server 80 to the terminal unit 100 for pachinko games, or 140. When performing the program supplied in the terminal unit 100 for pachinko games, or 140, it is the flow chart which shows the terminal unit 100 for pachinko games or 140, and the sub routine by which executive operation is carried out in each of a server 80.

[0176] Drawing 17 is a sub routine performed in the terminal unit 100 for pachinko games, or 140, and is called and performed from a main routine to predetermined timing. In addition, this main routine shall include beforehand the program which is needed in case communication with the servers 80, such as a program for judging whether communication with a server 80 is possible, is carried out.

[0177] In case first a pachinko game is gone on in the program for performing a pachinko game, and the terminal unit for pachinko games from a server 80, required image data and the sound data made to generate the sound outputted by the loudspeaker 118 are downloaded (Step S31).

[0178] Subsequently, when a game person operates an input unit 102, a pachinko game is started and executive operation of the game program is carried out (Step S32). It is for displaying pictures of the game machine picture, the background image, and the change pattern which required image data imitated pachinko game equipment and, such as a picture and a character picture, on display 116 including the game program by which this game program controls a pachinko game, and the program for performing the adjustable display game shown in drawing 7 mentioned above. Furthermore, the sound data made to generate the sound outputted by the loudspeaker 118 are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0179] Moreover, when a game program is performed in the terminal unit 100 for pachinko games, or 140, it detects that the game person operated the input unit 102. When it detects that the game person operated the input unit 102, as mentioned above, the display 132 which the game machine picture which imitated pachinko game equipment is displayed on the terminal unit 100 for pachinko games or the display 116 of 140, and displays an adjustable display game on this game machine picture is also displayed. Furthermore, when a game person operates an input unit 102 that a game sphere should be discharged, the picture of the game sphere which can be checked by looking so that a game sphere may move in a game face-of-a-



board top is displayed on a game machine picture.

[0180] Next, it judges whether the game sphere went into the winning-a-prize mouth (Step S33). This winning-a-prize mouth is the general winning-a-prize mouth 50 shown in drawing 6 mentioned above, 54a-54d, and a picture portion specially corresponding to the winning-a-prize mouths 56a-56d.

[0181] When it judges that the game sphere went into the winning-a-prize mouth, processing which pays out the game sphere of the number according to the kind of winning-a-prize mouth is performed (Step S34). In addition, processing of this step S34 is good in the terminal unit 100 for pachinko games, or 140 also as memorizing the number of game spheres to RAM112 also as displaying the number of game spheres on one position of the display 116.

[0182] Next, it judges whether the game sphere went into the starting mouth (Step S35). This starting is a picture portion corresponding to the starting mouth 44 shown in drawing 6 mentioned above.

[0183] In this step S35, when it judges that the game sphere went into the starting mouth, the sub routine shown in drawing 9 mentioned above and the same adjustable display game manipulation routine are called and performed (Step S36). In addition, when an adjustable display game manipulation routine is performed, in the display 132 shown in drawing 13 and drawing 14, the picture and character picture of a background image or a change pattern are displayed.

[0184] Furthermore, after becoming reach in a display 132 by being in a reach state in an adjustable display game, and being performed the reach state screen-display manipulation routine shown in drawing 10, the sound which the effect of the above-mentioned binaural sound makes will be outputted so that the change direction and/or the fluctuation velocity of a last change pattern which determines whether to become great success change and it may be connected with the change.

[0185] Furthermore, it judges whether the game sphere passed the sphere passage detector (Step S37). This sphere passage detector is a picture portion corresponding to the sphere passage detectors 55a and 55b shown in drawing 6 mentioned above. In this step S37, when a sphere passage detector is judged that the game sphere passed, processing which usually indicates the pattern by change in display 52 is performed (Step S38).

[0186] In addition, as mentioned above, when are indicated by change and it becomes [ at which the pattern usually stopped ] a predetermined pattern, the picture which can be checked by looking so that the movable pieces 58a and 58b may be driven and the starting mouth 44 may be in an open state is displayed, and processing which a game sphere tends to go into the starting mouth 44, and becomes to it is performed.

[0187] Next, it judges whether the game was completed or not (Step S39). Judgment whether the game was completed or not judges that the game ended them when only the time of detecting having operated the input unit 102 and the number with which the game sphere was defined beforehand judged having been discharged by

the game face of a board, in order that a game person may end a game. When it judges that the game is not completed, processing is returned to Step S32 mentioned above.

[0188] On the other hand, when it judges that the game was completed, the game result which shows the number of the discharged game spheres, the number of the repaid game spheres, etc., and the game end information which shows that the game was completed are transmitted to a server 80 (Step S40), and this sub routine is ended.

[0189] Drawing 18 is a flow chart which shows the sub routine performed in a server 80 corresponding to the terminal side manipulation routine performed in the terminal unit 100 for pachinko games shown in drawing 17 , or 140.

[0190] It judges whether first, the terminal unit 100 for pachinko games or 140 is started, and it is in the state which can communicate (Step S51). When it is judged that the terminal unit 100 for pachinko games or 140 is not started, processing is returned to Step S51.

[0191] On the other hand, when it judges that the terminal unit 100 for pachinko games or 140 is started, various kinds of program and various kinds of image data, sound data, etc. are transmitted to the terminal unit 100 for pachinko games, or 140 (Step S52). Processing of this step S52 is equivalent to processing of Step S31 of drawing 17 mentioned above.

[0192] As mentioned above, it is for displaying the picture of the game machine picture, the background image, and the change pattern which various kinds of image data imitated pachinko game equipment and, a character picture, etc. on display 116 including the game program by which the program transmitted to the terminal unit 100 for pachinko games or 140 in Step S52 controls a pachinko game, and the program for performing the adjustable display game shown in drawing 9 mentioned above. Furthermore, the sound data made to generate the sound outputted by the loudspeaker 118 are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0193] Next, it judges whether the information which shows the purport which the game result and the game ended was transmitted from the terminal unit 100 for pachinko games, or 140 (Step S53). This step S53 is equivalent to Step S40 of drawing 17 mentioned above. In Step S53, when it judges that neither a game result nor game end information is transmitted from the terminal unit 100 for pachinko games, or 140, processing is returned to Step S53. In addition, in the terminal unit 100 for pachinko games, or 140, while processing of Steps S32-S39 shown in drawing 17 is performed, processing of Step S53 which set server 80 and was mentioned above is performed repeatedly.

[0194] On the other hand, when it is judged in Step S53 that a game result and game end information were transmitted from the terminal unit 100 for pachinko games or 140, a game result and game end information are received (Step S54), and

this sub routine is ended.

[0195] Since the program and various kinds of image data for performing a pachinko game are always transmitted from a server 80 before a game is started in the terminal unit 100 for pachinko games, or 140 when it considers as composition which was mentioned above, when a program and image data are updated in a server 80, the game person can always enjoy the newest game.

[0196] Moreover, the change direction and/or the fluctuation velocity of a last change pattern which determine whether to become great success change, and when it considers as such composition, after becoming reach in the display 132 displayed on the terminal unit 100 for pachinko games which is a terminal, or the display 116 of 140, the program which outputs the sound which the effect of the above-mentioned binaural sound makes is stored in the hard disk drive 88 grade of a server 80 so that it is connected with the change.

[0197] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity by considering as such composition, the presence by the binaural sound can be given. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and the malaise memorized to a game person, a game person's feeling of fullness and feeling of achievement can be uplifted, and fast improvement in interest can be aimed at.

[0198] Next, the terminal unit 100 for pachinko games or ROM110 of 140 is made to memorize beforehand the program for controlling a pachinko game, and the program for performing an adjustable display game. When it considers as the composition which transmits suitably the image data and sound data of the various kinds which are alike, therefore are needed with which a pachinko game advances from a server 80, the terminal unit 100 for pachinko games or 140, and the sub routine performed in a server 80 are shown in drawing 19 , drawing 20 , and drawing 21 .

[0199] Drawing 19 is a sub routine performed in the terminal unit 100 for pachinko games, or 140, in the following explanation, to predetermined timing, shall be read from ROM110 and shall be performed from the main routine. In addition, this main routine shall include beforehand the program which is needed in case communication with the servers 80, such as a program for judging whether communication with a server 80 is possible, is carried out. Moreover, except for the flow chart and Step S31 which were shown in drawing 17 , the flow chart shown in drawing 19 was the same, and gave the same sign to the step which carries out same processing.

[0200] First, a pachinko game is started by operation of a game person and executive operation of the game program is carried out (Step S32). This game program is for displaying a picture, a character picture, etc. of a game machine picture, a background image, or a change pattern which imitated pachinko game

equipment on display 116 including the game program which controls a pachinko game, and the program for performing the adjustable display game mentioned later, or outputting sound by the loudspeaker 118.

[0201] Moreover, when a game program is performed in the terminal unit 100 for pachinko games, or 140, it detects that the game person operated the input unit 102. When it detects that the game person operated the input unit 102, as mentioned above, the display 132 which the game machine picture which imitated pachinko game equipment is displayed on the terminal unit 100 for pachinko games or the display 116 of 140, and displays an adjustable display game on this game machine picture is also displayed.

[0202] Furthermore, when a game person operates an input unit 102 that a game sphere should be discharged, the picture of the game sphere which can be checked by looking so that a game sphere may move in a game face-of-a-board top is displayed on a game machine picture.

[0203] Next, it judges whether the game sphere went into the winning-a-prize mouth (Step S33). This winning-a-prize mouth is the general winning-a-prize mouth 50 shown in drawing 6 mentioned above, 54a-54d, and a picture portion specially corresponding to the winning-a-prize mouths 56a-56d.

[0204] When it judges that the game sphere went into the winning-a-prize mouth, processing which pays out the game sphere of the number according to the kind of winning-a-prize mouth is performed (Step S34). In addition, processing of this step S34 is good in the terminal unit 100 for pachinko games, or 140 also as memorizing the number of game spheres to RAM112 also as displaying the number of game spheres on the position of somewhere in display 116.

[0205] Next, it judges whether the game sphere went into the starting mouth (Step S35). This starting mouth is a picture portion corresponding to the starting mouth 44 shown in drawing 6 mentioned above.

[0206] In this step S35, when it judges that the game sphere went into the starting mouth, the adjustable display game manipulation routine mentioned later is called and performed (Step S36). In addition, when an adjustable display game manipulation routine is performed in this case and a reach screen-display manipulation routine is further performed in an adjustable display game manipulation routine In the display 132 shown in drawing 13 and drawing 14, after becoming reach, the change direction and/or fluctuation velocity of the last change pattern which determine whether become great success will change, and the sound which the effect of the above-mentioned binaural sound makes will be outputted so that it may be connected with the change.

[0207] Furthermore, it judges whether the game sphere passed the sphere passage detector (Step S37). This sphere passage detector is a picture portion corresponding to the sphere passage detectors 55a and 55b shown in drawing 6 mentioned above.

[0208] In this step S37, when a sphere passage detector is judged that the game

sphere passed, processing which usually indicates the pattern by change in display 52 is performed (Step S38). In addition, as mentioned above, when are indicated by change and it becomes [ at which the pattern usually stopped ] a predetermined pattern, the movable pieces 58a and 58b are driven, and the picture which can check the starting mouth 44 by looking so that it may be in an open state is displayed, and a game sphere tends to go into the starting mouth 44, and it is made to become it.

[0209] Next, it judges whether the game was completed or not (Step S39). Judgment whether the game was completed or not judges that the game ended them when only the time of detecting that the game person operated the input unit 102 that a game should be ended and the number with which the game sphere was defined beforehand judged having been discharged by the game face of a board. When it judges that the game is not completed, processing is returned to Step S32 mentioned above.

[0210] On the other hand, when it judges that the game was completed, the game result which shows the number of the discharged game spheres, the number of the repaid game spheres, etc., and the game end information which shows that the game was completed are transmitted to a server 80 (Step S40), and this sub routine is ended.

[0211] Drawing 20 is a flow chart which shows the sub routine which processes the adjustable display game called and performed in Step S36 mentioned above. In addition, the same sign was given to the step which carries out the same processing as the step of the flow chart shown in drawing 9 to the flow chart shown in drawing 20 .

[0212] The information which shows the purport by which first this sub routine was called and the execution start of the adjustable display game was carried out is transmitted to a server 80 (Step S61).

[0213] Next, the sound data made to generate the image data used as the picture of the change pattern which is the identification information picture needed in an adjustable display game, a background image, and a character picture, BGM, a sound effect, and voice, a control program, etc. are received from a server 80 (Step S62).

[0214] Subsequently, internal lottery processing by data processing of the terminal unit 100 for pachinko games or CPU108 of 140 is performed (Step S200). It is the processing set beforehand the combination of the pattern when this internal lottery processing indicating by halt all the patterns that belong to two or more groups by which it is indicated by change, and deciding a pattern, and CPU 108 carries out processing with the change display of a pattern, and a halt display so that it may mention later, and a halt indication of the pattern may be given in a display 132 in the combination of the pattern defined by internal lottery processing.

[0215] Subsequently, while the above-mentioned control program is performed and a background image is chosen by CPU108 based on the result, the screen configuration information of a background image is generated (Step S201), while a

character picture is chosen, the screen configuration information of a character picture is generated (Step S202), and the screen configuration information of the change pattern which is identification information is generated (Step S203).

[0216] And based on the generated screen configuration information, required image data is read among the above-mentioned image data which received in S62, and after considering as the image data displayed on a display 132, it is displayed on a display (Step S204).

[0217] By performing Steps S201-S204 mentioned above, the usual picture which consists of a background image or a character picture is displayed in the display 132 displayed on display 116.

[0218] Next, it judges whether it is the timing which indicates the pattern which belongs to one group among three groups by halt (Step S205). When it is judged that it is not the timing which indicates by halt, processing is returned to Step S201. On the other hand, when it distinguishes that it is the timing which indicates the left change pattern by halt, the left change pattern is indicated by halt (Step S206).

[0219] Next, it judges whether it is the timing which indicates the pattern belonging to one of two groups which remained by halt (Step S207). When it is judged that it is not the timing which indicates by halt, processing is returned to Step S201. On the other hand, when it distinguishes that it is the timing which indicates the right change pattern by halt, the right change pattern is indicated by halt (Step S208).

[0220] Then, it is judged whether the change pattern of the stopped right and left is the same (Step S210). And when it is judged that a change pattern on either side is the same, the sub routine of the reach screen-display processing shown in drawing 6 is performed (Step S29). In addition, about the sub routine of reach screen-display processing, it is the same as that of the reach screen-display manipulation routine shown in drawing 10 , and abbreviation, and since it is already explanation settled, explanation here is omitted.

[0221] On the other hand, when a pattern on either side is judged not to be the same in Step S210 next, it judges whether it is the timing which indicates the central pattern by halt (Step S211). When a central pattern is judged not to be the timing which indicates by halt, processing is returned to Step S201.

[0222] On the other hand, when a central pattern is judged to be the timing which indicates by halt, the central change pattern is indicated by halt (Step S212). And processing of Step S212 was performed, or information is transmitted to a server 80 as a result of the information which shows the purport which the adjustable display game ended when it distinguishes having ended the reach screen-display manipulation routine, and an adjustable display game (Step S64), and this sub routine is ended.

[0223] Drawing 21 is a flow chart which shows the sub routine performed in a server 80 corresponding to the terminal side manipulation routine performed in the terminal unit 100 for \*\*\*\* pachinko games shown in drawing 20 , or 140. The server 80 shall be started beforehand, and the sub routine shown in drawing 21 shall be called and

performed from the main routine currently performed beforehand.

[0224] It judges whether the information which first shows the purport by which the adjustable display game was started in the terminal unit 100 for pachinko games or 140 was received (Step S71). When it judges that the information which shows the purport by which the adjustable display game was started is not received, this sub routine is ended immediately.

[0225] When it judges that the information which, on the other hand, shows the purport by which the adjustable display game was started was received, the picture of the change pattern which is the identification information picture needed in an adjustable display game, a background image, the sound data made to generate the image data used as a character picture and BGM, a sound effect, and voice, a control program, etc. are transmitted to the terminal unit 100 for pachinko games, or 140 (Step S72). This step S72 corresponds to processing of Step S62 shown in drawing 20 mentioned above.

[0226] Next, it judges whether the information which shows the purport which ended the adjustable display game was received (Step S75). Processing of this step S75 is processing corresponding to processing of Step S64 of drawing 20 mentioned above. In Step S75, when it judges that the information which shows the purport which ended the adjustable display game is not received, processing is returned to Step S75. When it judges that the information which, on the other hand, shows the purport which ended the adjustable display game was received, this sub routine is ended.

[0227] In the display 132 displayed on the terminal unit 100 for pachinko games which is a terminal, or the display 116 of 140 when it considered as the composition mentioned above So that the change direction and/or fluctuation velocity of the last change pattern which determine whether become great success may change and it may be connected with the change, after becoming reach The picture of the change pattern which is an identification information picture as the sound which the effect of the above-mentioned binaural sound makes is outputted, The image data used as a background image and a character picture, the sound data made to generate the sound which the effect of a binaural sound makes, And a server 80 transmits a control program etc. to the terminal unit 100 for pachinko games, or 140, and a server 80 controls the terminal unit 100 for pachinko games which is a terminal, or 140.

[0228] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity by considering as such composition, the presence by the binaural sound can be given. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and the malaise memorized to a game person, a game person's feeling of

fullness and feeling of achievement can be uplifted, and fast improvement in interest can be aimed at.

[0229] Moreover, when the picture of a change pattern, a background image, a character picture, its method of presentation, etc. are updated in a server 80, image data, a control program, etc. with the terminal unit 100 for pachinko games or 140 will be transmitted from a server 80. [ always new ] Therefore, the game person can enjoy the newest production screen in the terminal unit 100 for pachinko games, or 140.

[0230] Furthermore, only the game program which controls a pachinko game, and the program for performing an adjustable display game are transmitted from a server. The data of the picture of a change pattern, a background image, and a character picture The terminal unit 100 for pachinko games or ROM110 of 140 memorizes beforehand. When it considers as the composition which reads needed image data from ROM110 suitably, the terminal unit 100 for pachinko games or 140, and the sub routine performed in a server 80 are shown in drawing 22 and drawing 23 .

[0231] Drawing 22 is a sub routine performed in the terminal unit 100 for pachinko games, or 140, when it considers as the composition mentioned above. In addition, in Step S36 of this drawing 19 , the sub routine which the terminal unit 100 for pachinko games or 140 is beforehand started, the sub routine shown in drawing 19 mentioned above is read from ROM110, is performed from a main routine to predetermined timing, and is shown in drawing 22 shall be read from ROM110, and shall be performed. Moreover, in the sub routine shown in drawing 22 , it attached at the step which performs processing of a sub routine shown in drawing 20 , and same processing, and the same sign was attached.

[0232] First, the terminal unit 100 for pachinko games or 140 transmits the information which shows the purport by which the adjustable display game was started to a server 80 (Step S61).

[0233] Subsequently, control programs, such as a game program which controls a pachinko game, and a program for performing an adjustable display game, are received from a server 80, and the received control program is performed (Step S81).

[0234] Subsequently, internal lottery processing by data processing of the terminal unit 100 for pachinko games or CPU108 of 140 is performed (Step S200). It is the processing set beforehand the combination of the pattern when this internal lottery processing indicating by halt all the patterns that belong to two or more groups by which it is indicated by change, and deciding a pattern, and CPU 108 carries out processing with the change display of a pattern, and a halt display so that it may mention later, and a halt indication of the pattern may be given in a display 132 in the combination of the pattern defined by internal lottery processing.

[0235] Subsequently, while the above-mentioned control program is performed and a background image is chosen by CPU108 based on the result, the screen configuration information of a background image is generated (Step S201), while a character picture is chosen, the screen configuration information of a character



picture is generated (Step S202), and the screen configuration information of the change pattern which is identification information is generated (Step S203).

[0236] And based on the generated screen configuration information, required image data is read among the image data memorized by ROM110, and after considering as the image data displayed on a display 132, it is displayed on a display (Step S204).

[0237] By performing Steps S201-S204 mentioned above, the usual picture which consists of a background image or a character picture is displayed in the display 132 displayed on display 116.

[0238] Next, it judges whether it is the timing which indicates the pattern which belongs to one group among three groups by halt (Step S205). When it is judged that it is not the timing which indicates by halt, processing is returned to Step S201. On the other hand, when it distinguishes that it is the timing which indicates the left change pattern by halt, the left change pattern is indicated by halt (Step S206).

[0239] Next, it judges whether it is the timing which indicates the pattern belonging to one of two groups which remained by halt (Step S207). When it is judged that it is not the timing which indicates by halt, processing is returned to Step S201. On the other hand, when it distinguishes that it is the timing which indicates the right change pattern by halt, the right change pattern is indicated by halt (Step S208).

[0240] Then, it is judged whether the change pattern of the stopped right and left is the same (Step S210). And when it is judged that a change pattern on either side is the same, the sub routine of the reach screen-display processing shown in drawing 6 is performed (Step S29). In addition, about the sub routine of reach screen-display processing, it is the same as that of the reach screen-display manipulation routine shown in drawing 10 , and abbreviation, and since it is already explanation settled, explanation here is omitted.

[0241] On the other hand, when a pattern on either side is judged not to be the same in Step S210 next, it judges whether it is the timing which indicates the central pattern by halt (Step S211). When a central pattern is judged not to be the timing which indicates by halt, processing is returned to Step S201.

[0242] On the other hand, when a central pattern is judged to be the timing which indicates by halt, the central change pattern is indicated by halt (Step S212). And processing of Step S212 was performed, or information is transmitted to a server 80 as a result of the information which shows the purport which the adjustable display game ended when it distinguishes having ended the reach screen-display manipulation routine, and an adjustable display game (Step S64), and this sub routine is ended.

[0243] Drawing 23 is a sub routine performed in a server 80 corresponding to the adjustable display game manipulation routine performed in the terminal unit 100 for pachinko games shown in drawing 22 , or 140. The server 80 shall be started beforehand, and the sub routine shown in drawing 23 shall be called and performed from the main routine currently performed beforehand. In addition, in the sub routine shown in drawing 23 , the same sign was attached about the step which performs

processing of a sub routine shown in drawing 21 , and same processing.

[0244] It judges whether the information which first shows the purport by which the adjustable display game was started in the terminal unit 100 for pachinko games or 140 was received (Step S71). Processing of this step S71 is processing corresponding to Step S61 shown in drawing 22 mentioned above. When it judges that the information which shows the purport by which the adjustable display game was started is not received, this sub routine is ended immediately.

[0245] When it judges that the information which, on the other hand, shows the purport by which the adjustable display game was started was received, control programs, such as a game program which controls a pachinko game, and a program for performing an adjustable display game, are transmitted to the terminal unit 100 for pachinko games, or 140 (Step S91). This step S91 corresponds to processing of Step S81 shown in drawing 22 mentioned above.

[0246] Next, it judges whether the information which shows the purport which ended the adjustable display game was received (Step S75). Processing of this step S75 is processing corresponding to processing of Step S64 of drawing 22 mentioned above. In Step S75, when it judges that the information which shows the purport which ended the adjustable display game is not received, processing is returned to Step S75. When it judges that the information which, on the other hand, shows the purport which ended the adjustable display game was received, this sub routine is ended.

[0247] The change direction and/or the fluctuation velocity of a last change pattern which determine whether it becomes great success change, and when having considered as the composition which mentioned above, after becoming reach in the display 132 displayed on the terminal unit 100 for pachinko games which is a terminal, or the display 116 of 140, the program which outputs the sound which the effect of the above-mentioned binaural sound makes is memorized by the hard disk drive 88 grade of a server 80 so that it connects with the change.

[0248] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity by considering as such composition, the presence by the binaural sound can be given. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and a feeling of fatigue memorized to a game person, a game person's feeling of fullness and feeling of achievement can be uplifted, and fast improvement in interest can be aimed at.

[0249] Moreover, since the control program for performing an adjustable display game is always downloaded when an adjustable display game is started, although a game person does not need to download about the data of the picture of a change pattern, a background image, and a character picture while being able to enjoy the

newest adjustable display game therefore, he can display the production picture promptly in the terminal unit 100 for pachinko games, or the display 116 of 140.

[0250] Next, a server memorizes programs, such as a program for controlling a pachinko game, and a program for performing an adjustable display game, and the case where the terminal unit 100 for pachinko games or ROM110 of 140 memorizes the image data which a pachinko game and an adjustable display game need is shown below.

[0251] When it considers as such composition, a server 80 performs advance of a pachinko game, and the terminal unit 100 for pachinko games or 140 chooses a picture according to the control signal or control information transmitted according to advance of a pachinko game performed in the server 80, and displays the selected picture on display 116.

[0252] When it considers as such composition, the sub routine performed in the terminal unit 100 for pachinko games or 140, and a server 80 is shown in drawing 24 , drawing 25 , drawing 26 , and drawing 27 .

[0253] Drawing 24 is a flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games, or 140, the main routine which is not illustrated in the following explanation when the terminal unit 100 for pachinko games or 140 is started is performed, and after checking that it is in the state in which communication with a server 80 is possible in this main routine, this sub routine shall be called and performed.

[0254] First, the image data and sound data which were transmitted from the server 80 are received (Step S101). The image data in this case is image data not only containing the thing about the adjustable display game mentioned later but the thing about pachinko games, such as the game board and a game sphere. Moreover, the above-mentioned sound data are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes. In addition, when it considers as the composition these image data and sound data are beforehand remembered to be by the terminal unit 100 for pachinko games, or ROM110 of 140, it is good also as excluding processing of Step S101.

[0255] Next, it judges whether the game person operated the input unit 102 (Step S102). When it judges that the game person operated the input unit 102, the operation information according to operation of a game person is transmitted to a server 80 (Step S103).

[0256] When it judges that the game person is not operating the input unit 102 after performing processing of Step S103 or, it judges whether instruction information was emitted from the server 80 (Step S104).

[0257] When it judges that instruction information was emitted from the server 80, instruction information is received and it judges whether the instruction information is end instruction information (Step S105).

[0258] When it judges that instruction information is not end instruction information,

the picture according to the received instruction information is chosen, and the selected picture is displayed on display 116 (Step S106). Processing is returned to Step S102 mentioned above after this processing. Moreover, in Step S104, when it judges that instruction information is not emitted from a server 80, processing is returned to Step S102 mentioned above.

[0259] In Step S105 mentioned above, when it judges that the received instruction information is end instruction information, this sub routine is ended.

[0260] The instruction information received in Step S104 mentioned above They are information, such as screen configuration information generated in Steps S122, S124, S126, S128, S130, S132, and S134 of drawing 26 mentioned later. According to these information, the terminal unit 100 for pachinko games or 140 chooses desired image data, reads from ROM110, and displays the read image data on display 116 as a picture.

[0261] Drawing 25 is a flow chart which shows the sub routine performed in a server 80 corresponding to the sub routine of drawing 24 mentioned above. The server 80 shall be started beforehand, and the sub routine shown in drawing 25 shall be called and performed from the main routine currently performed beforehand.

[0262] First, image data and sound data are transmitted to the terminal unit 100 for pachinko games which is a terminal, or 140 (Step S111). As this step is equivalent to Step S101 mentioned above and being mentioned above, this image data is image data not only containing the thing about an adjustable display game but the thing about pachinko games, such as the game board and a game sphere. Moreover, the above-mentioned sound data are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0263] Next, the operation information emitted from the terminal unit 100 for pachinko games or 140 is received (Step S112). This step is processing corresponding to Step S103 mentioned above.

[0264] When the operation information emitted from the terminal unit 100 for pachinko games or 140 is received, it judges whether the received operation information is game sphere discharge operation information (Step S113).

[0265] When it judges that operation information is game sphere discharge operation information, pachinko game processing mentioned later is performed (Step S114). In Step S112 mentioned above, when the operation information emitted from the terminal unit 100 for pachinko games or 140 is not received, processing of Step S114 is performed immediately.

[0266] When it, on the other hand, judges that operation information is not game sphere discharge operation information in Step S113, or when processing of Step S114 is performed, the instruction information generated by the pachinko game processing performed in Step S114 is transmitted to the terminal unit 100 for pachinko games, or 140 (Step S115). Processing of this step S115 is processing corresponding to Step S104 mentioned above.

[0267] Subsequently, it judges whether the transmitted instruction information is end instruction information (Step S116). When it judges that the transmitted instruction information is not end instruction information, processing is returned to Step S112 mentioned above.

[0268] Drawing 26 is a flow chart which shows the sub routine of the pachinko game processing called in Step S114 mentioned above.

[0269] It judges whether first, the picture of a game sphere is moved and it displays (Step S121). When it judges that the picture of a game sphere is moved and it displays, that it should be displayed that the picture of a game sphere can check by looking so that a game sphere may move, the position of the movement place of the game sphere in a picture is calculated, and the position is generated as positional information (Step S122).

[0270] Next, it judges whether the position of the picture of the game sphere calculated in whether the ball game sphere went into the winning-a-prize mouth and Step S121 is near the position of the picture which shows a winning-a-prize mouth (Step S123). This winning-a-prize mouth is the general winning-a-prize mouth 50 shown in drawing 6 mentioned above, 54a-54d, and a picture portion specially corresponding to the winning-a-prize mouths 56a-56d.

[0271] When it judges that the calculated position is near the position of a winning-a-prize mouth, processing which pays out a game sphere is performed (Step S124). In addition, the processing which pays out this game sphere is processing generated that the number information of game spheres which the number of the game spheres beforehand defined according to the kind of winning-a-prize mouth is memorized to RAM86, or shows the number of game spheres should be transmitted to the terminal unit 100 for pachinko games, or 140.

[0272] Subsequently, it judges whether the position of the picture of the game sphere calculated in whether the game sphere went into the starting mouth and Step S121 is near the position of the picture which shows a starting mouth (Step S125). In addition, this starting mouth is a picture portion corresponding to the starting mouth 44 shown in drawing 6 mentioned above.

[0273] When it judges that the calculated position is near the position of a starting mouth, processing which starts the adjustable display game mentioned later is performed (Step S126). In addition, the processing which starts this adjustable display game performs adjustable display game processing which internal lottery processing in which the combination of the identification information displayed on a display 132 is defined is performed, and shows it in drawing 27 mentioned later, when the pattern which is identification information is decided.

[0274] Next, it judges whether the position of the picture of the game sphere which the game sphere passed the sphere passage detector, or was calculated in Step S121 is near the position of the picture which shows a sphere passage detector (Step S127). In addition, this sphere passage detector is a picture portion corresponding to the sphere passage detectors 55a and 55b shown in drawing 6

mentioned above.

[0275] When it judges that the game sphere passed near the sphere passage detector, the selection image information which shows the picture which indicates by change, and which was made to usually choose the picture of a pattern and was chosen is made to generate in this step S127 in the display 152 displayed on the terminal unit 100 for pachinko games, or 140 (Step S128).

[0276] Subsequently, in the display 152 displayed on the terminal unit 100 for pachinko games, or 140, a pattern usually judges whether it stopped in the displayed predetermined pattern (Step S129).

[0277] When a pattern usually judges that it stopped in the predetermined pattern, the picture of a movable piece is chosen and the selection image information which shows the selected picture is generated so that the picture from which the starting mouth mentioned above will be in an open state may be displayed (Step S130). When this selection image information is emitted by the terminal unit 100 for pachinko games, or 140, in the terminal unit 100 for pachinko games, or the display 116 of 140, the picture which can be checked by looking as the movable piece is in the open state is displayed. In addition, a movable piece is a picture portion corresponding to the movable pieces 58a and 58b shown in drawing 6 mentioned above.

[0278] Next, it judges whether the ornament lamp is indicated by lighting or it indicates by putting out lights (Step S131). When it judges that an ornament lamp displays [ lighting-] or displays [ putting-out-lights-], the selection image information which chooses an each of the state picture, and shows the selected picture is generated (Step S132). This ornament lamp is a picture portion corresponding to the ornament lamps 36a and 36b shown in drawing 6 mentioned above. When the selection image information mentioned above is emitted by the terminal unit 100 for pachinko games, or 140, the picture which can be checked by looking as the light is switched on, or the picture which can be checked by looking as the light is put out is displayed on the picture portion of the ornament lamps 36a and 36b currently displayed in display 116.

[0279] Subsequently, it judges whether the game was completed or not (Step S133). When it judges that the game was completed, game end information is generated (Step S134), and this sub routine is ended. In addition, whether the game was completed or not judges that the game was completed, when operation in which the game person who operates the terminal unit 100 for pachinko games or 140 ends a game was carried out, or when the number of the game spheres discharged to the game face of a board turns into more than a predetermined number.

[0280] Drawing 27 is a flow chart which shows the sub routine which processes the adjustable display game called and performed in Step S126 mentioned above.

[0281] First, the background image which should be displayed on the display 132 of the terminal unit 100 for pachinko games or the display 116 of 140, the picture of a change pattern, and a character picture are chosen (Steps S141, S142, and S143).

[0282] Next, when it judges whether it is the timing which gives a halt indication of

the pattern which is one identification information, for example, the left pattern, (Step S144) and distinguishes that it is the timing which indicates by halt, the picture which indicates the above-mentioned change pattern by halt is chosen (Step S145). Next, when it judges whether it is the timing which indicates the right pattern by halt further (Step S146) and distinguishes that it is the timing which indicates by halt, the picture which indicates the change pattern by halt is chosen (Step S147). [0283] Next, it judges whether it is the timing which distinguishes (Step S148), and a central pattern makes give a halt indication of whether the change pattern of the stopped right and left is the same further when not the same (Step S150), and if it is the timing which indicates by halt, the picture which indicates the change pattern by halt will be chosen (Step S151). On the other hand, if the change pattern of the stopped right and left is the same, the same reach screen-display manipulation routine as drawing 6 and abbreviation will be performed (Step S149). In addition, about a reach screen-display manipulation routine, since it is already explanation settled, explanation here is omitted.

[0284] Next, the screen configuration information of Steps S141-S143 mentioned above and the picture chosen by S145, S147, and S150 is generated (Step S152). A server 80 transmits the screen configuration information generated at Step S152 mentioned above as instruction information in Step S115 of drawing 21 mentioned above to the terminal unit 100 for pachinko games which is a terminal, or 140.

[0285] On the other hand, the terminal unit 100 for pachinko games or 140 displays the picture which read the data of a picture from ROM110 or RAM112, and was read to the display 132 of display 116 in Step S106 based on the screen configuration information which the received instruction information shows, after receiving in Step S104 of drawing 20 which mentioned above the instruction information transmitted from the server 80.

[0286] The change direction and/or the fluctuation velocity of the last change pattern which determines whether become great success can change, and a server 80 can control [ in the terminal unit 100 for pachinko games which is a terminal by doing in this way, or the display 132 of 140 ] a screen to output the sound which the effect of the above-mentioned binaural sound makes to be connected with the change, after serving as reach.

[0287] Next, it judges whether all the patterns stopped (Step S153). When it distinguishes that all the patterns stopped, adjustable display game end information is generated (Step S154), and this sub routine is ended.

[0288] In addition, the sub routine shown in this drawing 27 will be set, by the time an adjustable display game is started and it is not only called, but [ when start processing of the adjustable display game of Step S126 shown in drawing 26 is performed, ] ends, and it is called and performed to predetermined timing.

[0289] When having considered as the composition which mentioned above, after becoming reach in the display 132 displayed on the terminal unit 100 for pachinko games which is a terminal, or the display 116 of 140, the change direction and/or the

fluctuation velocity of a last change pattern which determine whether it becomes great success change, and a server 80 controls the terminal unit 100 for pachinko games, or 140 outputting the sound which the effect of the above-mentioned binaural sound makes connecting with the change.

[0290] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity by considering as such composition, the presence by the binaural sound can be given. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and the malaise memorized to a game person, a game person's feeling of fullness and feeling of achievement can be uplifted, and fast improvement in interest can be aimed at.

[0291] In addition, although the case where the picture of a change pattern, a background image, a character picture, etc. were displayed only in the display 132 displayed on the picture of the game machine which imitated the pachinko game equipment displayed on display 116 in the example shown in drawing 27 from drawing 17 mentioned above was shown, it is good also as displaying the picture of a change pattern, a background image, a character picture, etc. on the whole surface of display 116.

[0292] Moreover, it can judge whether the game person was provided with the production expression method concerning this invention which was mentioned above etc. by checking that the enjoyableness in a pachinko game is increasing. For example, the economical phenomenon of the store which adopted pachinko game equipment which was mentioned above prospering, and when being carried by the magazine etc., it becomes the phenomenon in which information permeates through media, such as becoming reputation, and will appear.

[0293]

[Effect of the Invention] While being able to make change of the last change pattern recognize firmly to a game person by outputting the sound which the effect of a binaural sound makes so that it may be connected with change of the change direction of the last change pattern, and/or fluctuation velocity according to this invention, the presence by the binaural sound can be given. Consequently, when the degree of expectation about the whereabouts of a game and the degree of excitement are raised and a game is becoming it a great success, without making a monotonous feeling and the malaise memorized to a game person, a game person's feeling of fullness and feeling of achievement can be uplifted, and fast improvement in interest can be aimed at.

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[Translation done.]



**\* NOTICES \***

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2.\*\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is explanatory drawing about a virtual source.

[Drawing 2] It is explanatory drawing about a virtual source.

[Drawing 3] It is explanatory drawing about a virtual source.

[Drawing 4] (a) is explanatory drawing about a parametric loudspeaker, (b) is drawing showing typically the frequency spectrum of the nonlinear interaction by the sine wave, and (c) is drawing showing typically the frequency spectrum of the nonlinear interaction by the amplitude modulation wave.

[Drawing 5] It is the front view showing the pachinko game equipment by this invention typically.

[Drawing 6] It is the expansion front view showing typically the game face of a board of the pachinko game equipment by this invention.

[Drawing 7] It is the block diagram showing the control circuit of the pachinko game equipment which is the example of this invention.

[Drawing 8] It is the flow chart which shows the sub routine of processing which detects the game sphere performed in pachinko game equipment.

[Drawing 9] It is the flow chart which shows the sub routine of the adjustable display game processing called and performed in Step S14 of the flow chart shown in drawing 8 .

[Drawing 10] It is the flow chart which shows the reach screen-display manipulation routine in the sub routine of adjustable display game processing.

[Drawing 11] It is drawing showing an example of the screen picture concerning this invention typically.

[Drawing 12] It is drawing showing an example of the screen picture concerning this invention typically.

[Drawing 13] It is the general-view view showing an example of the terminal for pachinko games.

[Drawing 14] It is the general-view view showing other examples of the terminal for pachinko games.

[Drawing 15] It is the block diagram showing the control circuit of the terminal unit

for pachinko games which is the example of this invention.

[Drawing 16] It is the block diagram showing the control circuit of the server which is the example of this invention.

[Drawing 17] It is the flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games which is the example of this invention, or 140.

[Drawing 18] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Drawing 19] It is the flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 20] It is the flow chart which shows the sub routine which processes the adjustable display game performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 21] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Drawing 22] It is the flow chart which shows the sub routine which processes the adjustable display game performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 23] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Drawing 24] It is the flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 25] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Drawing 26] In Step S114 of the flow chart of drawing 24 , it is the flow chart which shows the sub routine of the pachinko game processing called.

[Drawing 27] In Step S126 of the flow chart of drawing 25 , it is the flow chart which shows the sub routine of the pachinko game processing called.

[Description of Notations]

10 Pachinko Game Equipment (Game Machine)

32 Display (Display)

48 (48a, 48b) Loudspeaker

60 Control Circuit

66 CPU (Control Section)

64 Input/output Bus

68 ROM

70 RAM

80 Server

100 Terminal Unit for Pachinko Games (Terminal)

132 Display

140 Terminal Unit for Pachinko Games (Terminal)

201 (201a, 201b) Loudspeaker

500 Parametric Loudspeaker

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[Translation done.]

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1. This document has been translated by computer. So the translation may not reflect the original precisely.

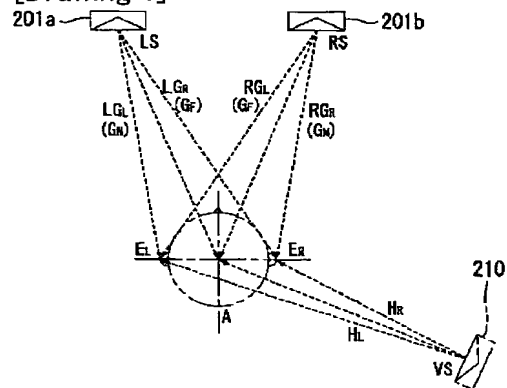
2. \*\*\*\* shows the word which can not be translated.

3. In the drawings, any words are not translated.

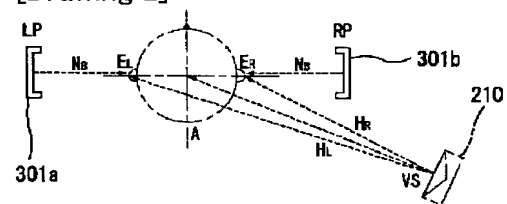
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DRAWINGS

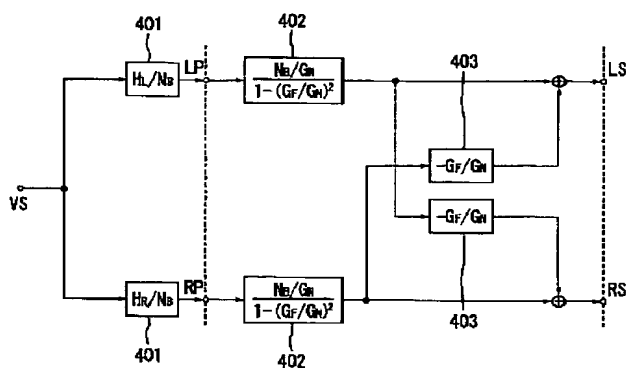
[Drawing 1]



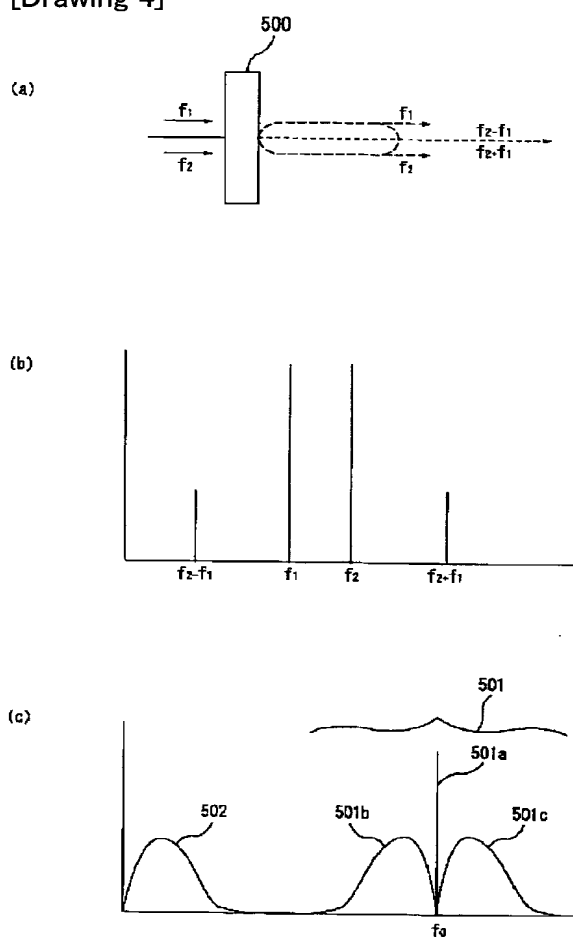
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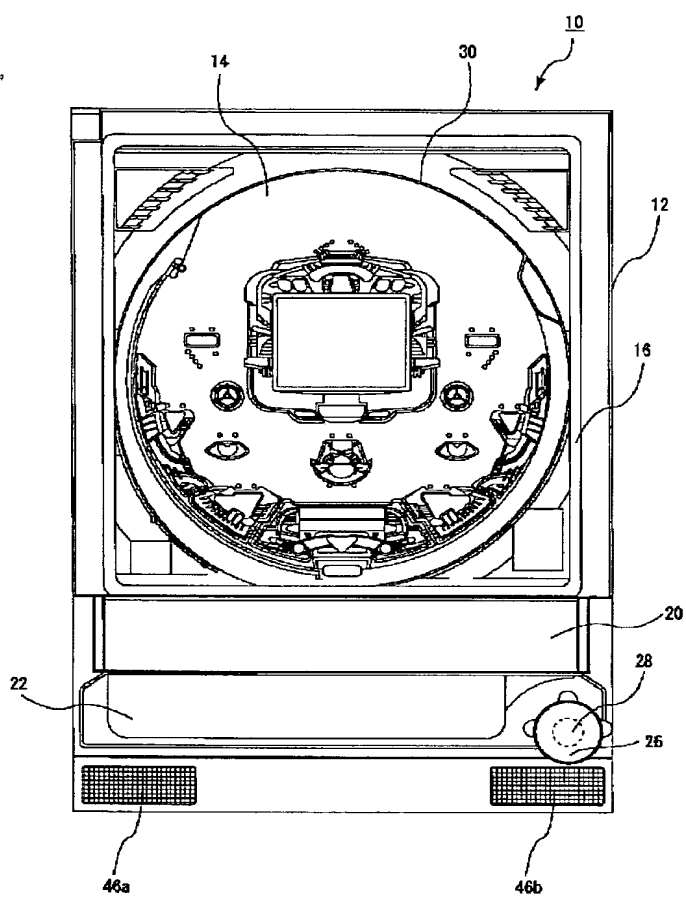
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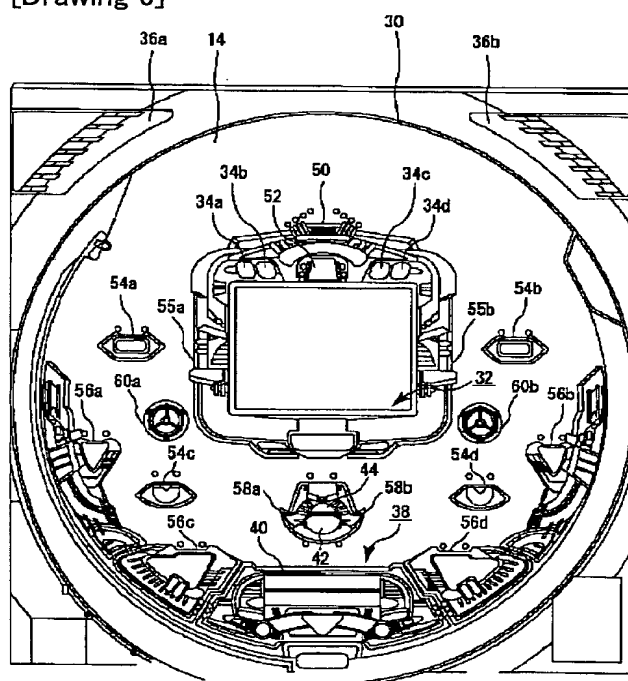
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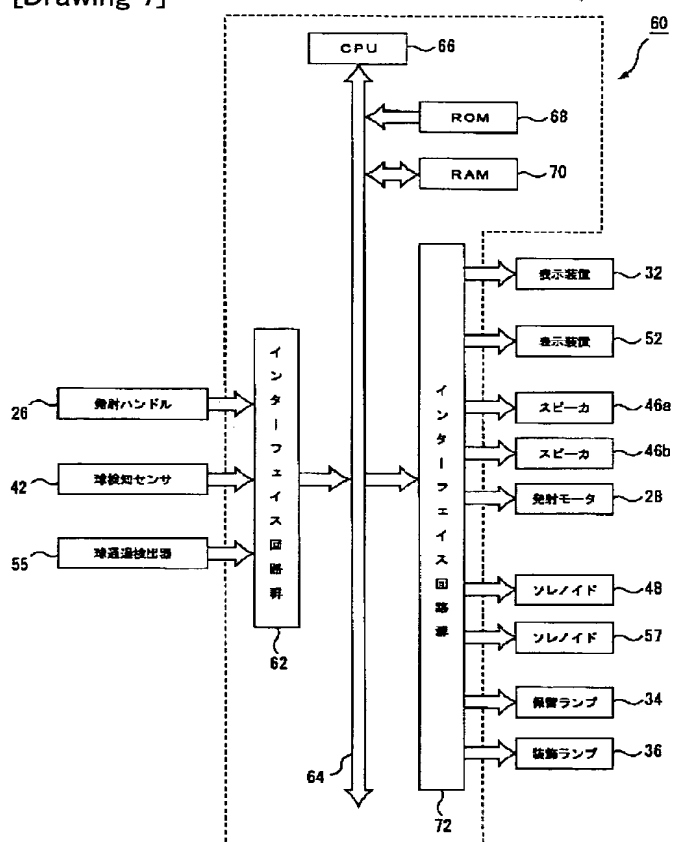
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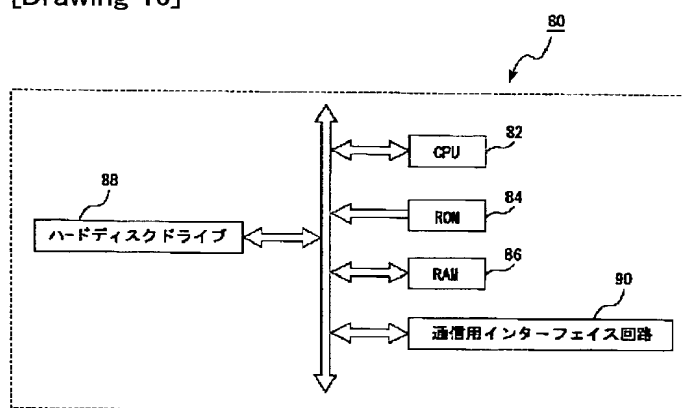
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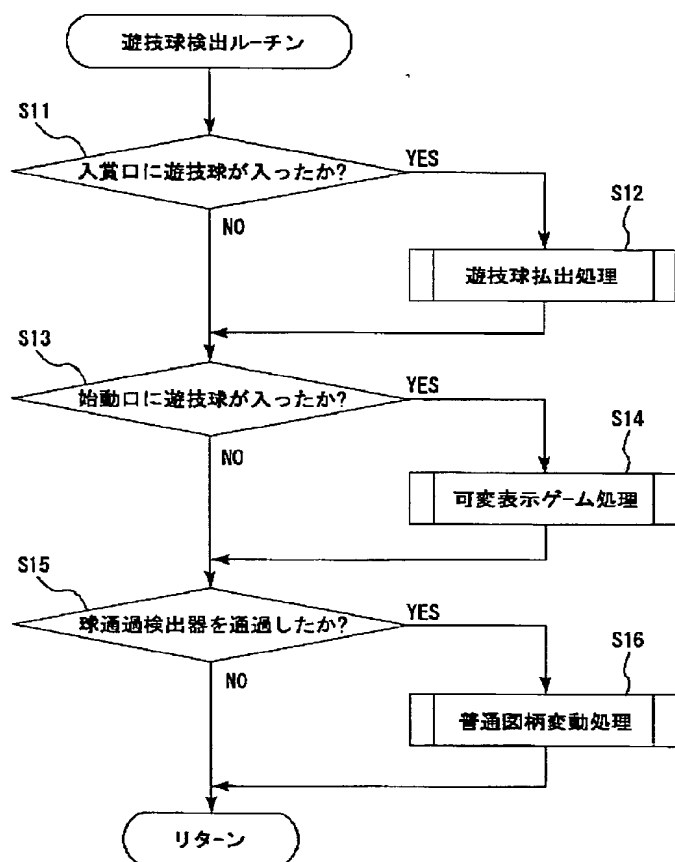
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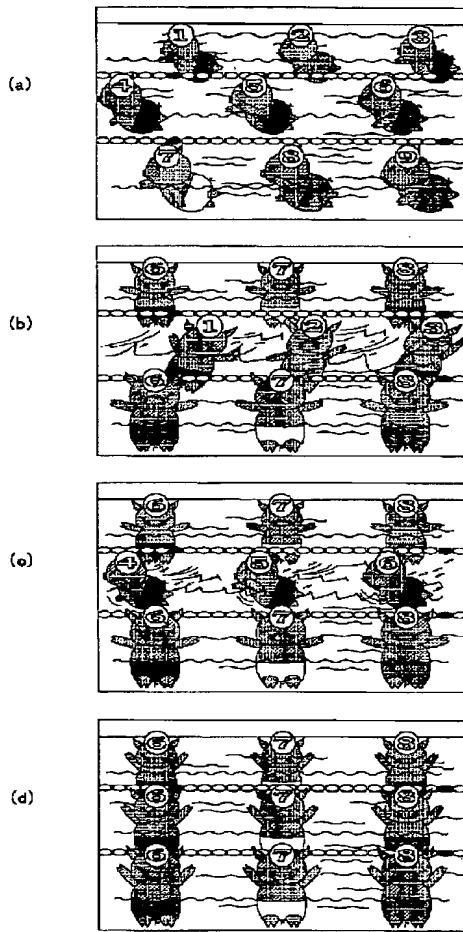
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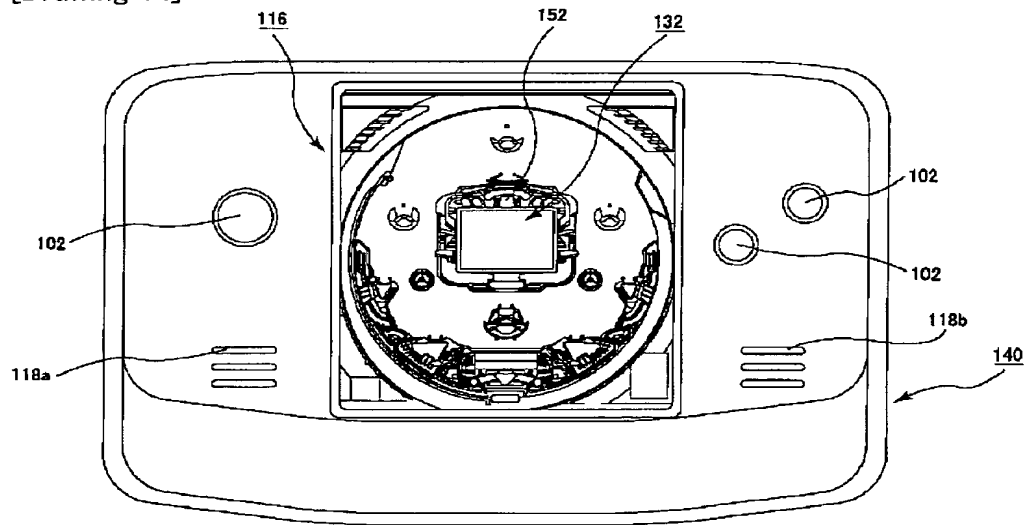
[Drawing 8]



[Drawing 11]

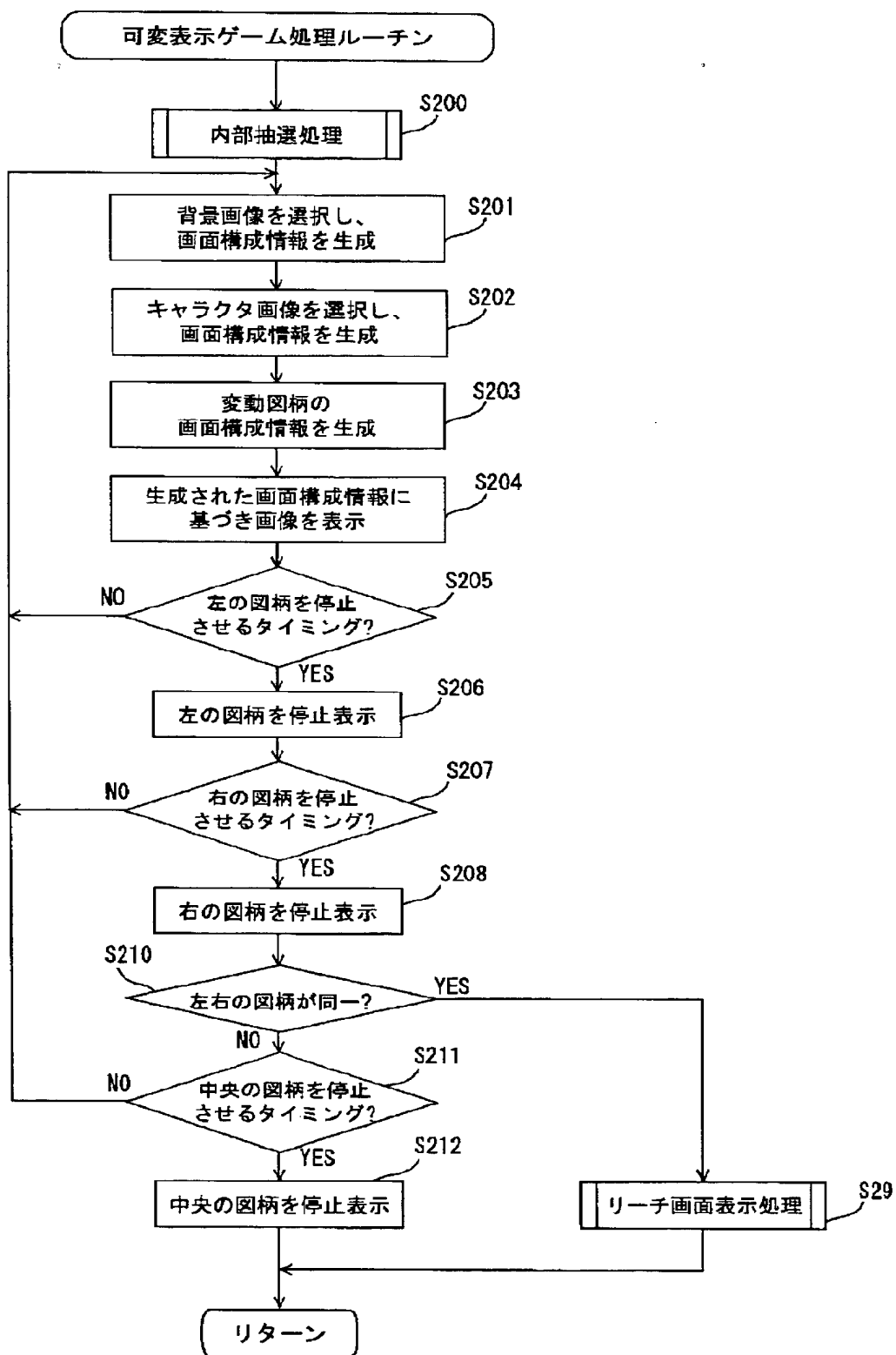


[Drawing 14]

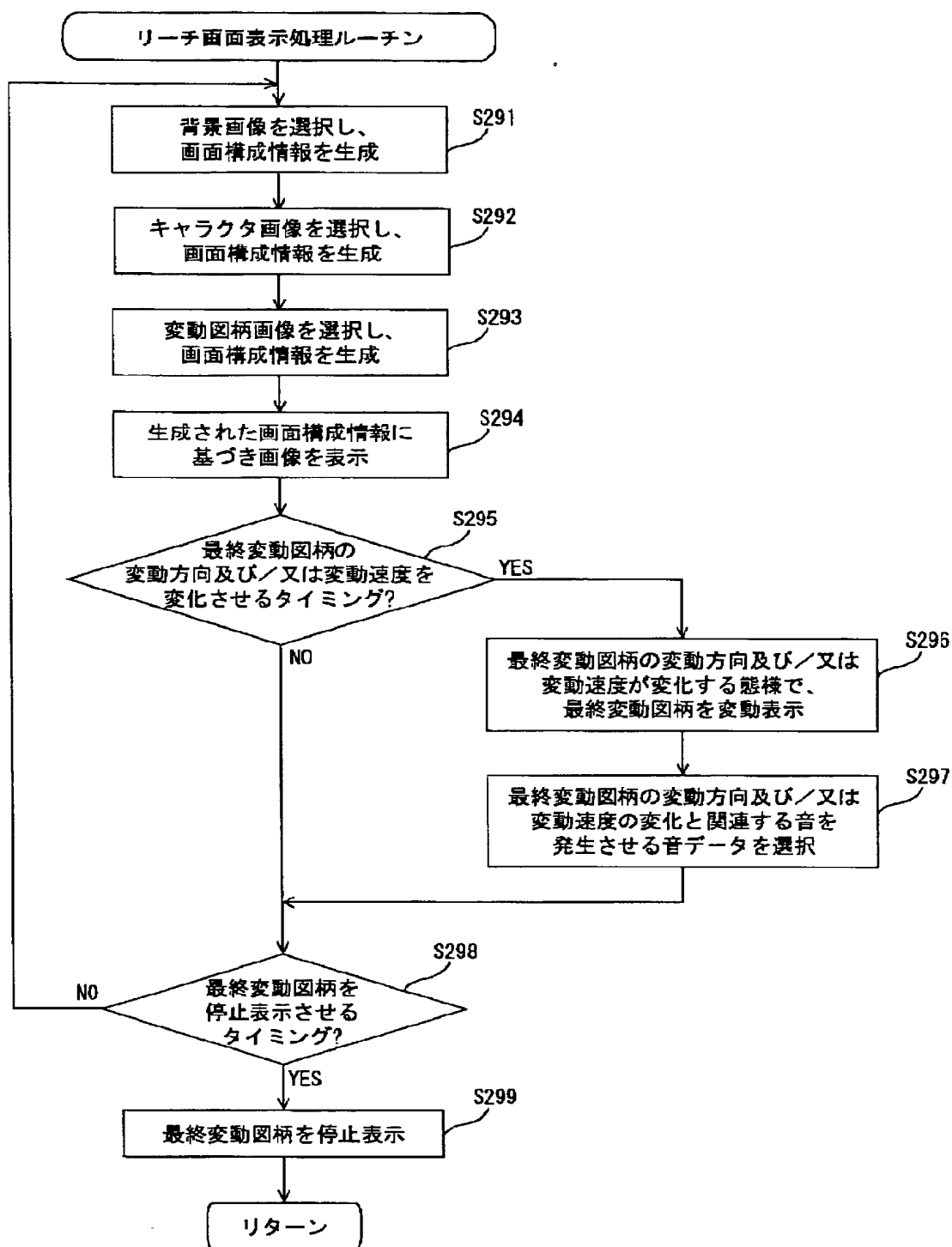


[Drawing 9]

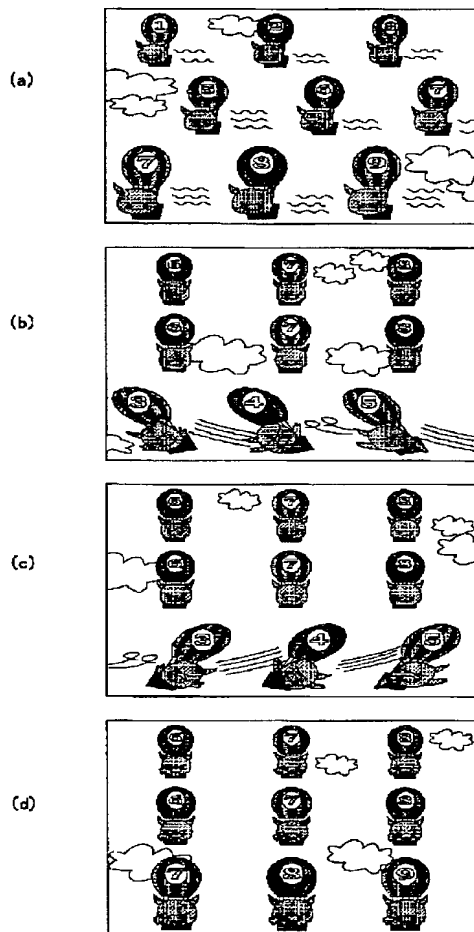




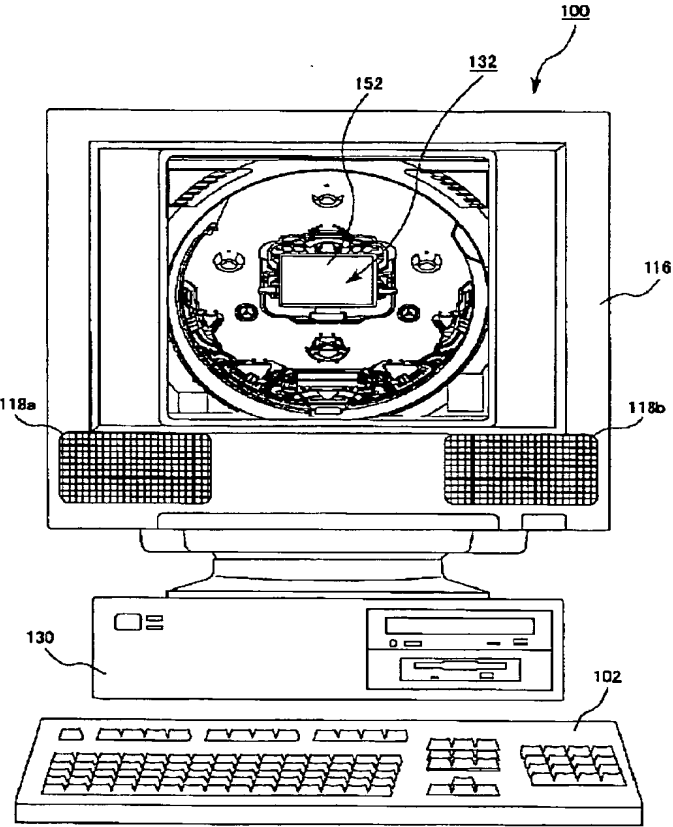
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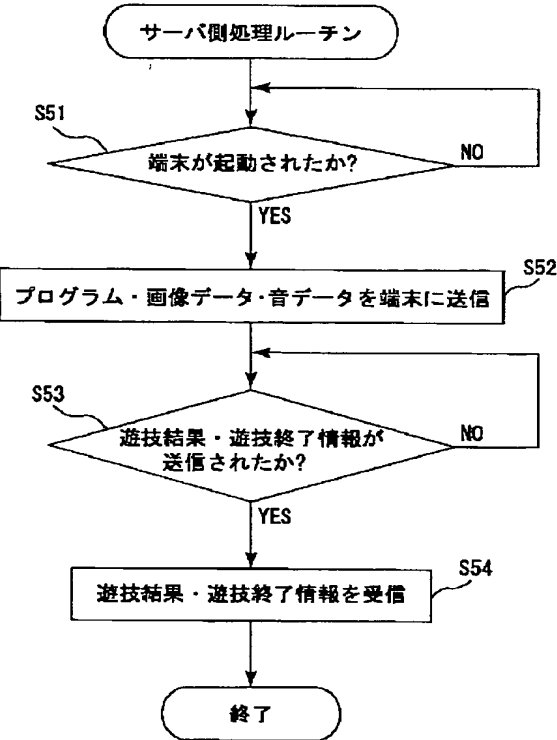
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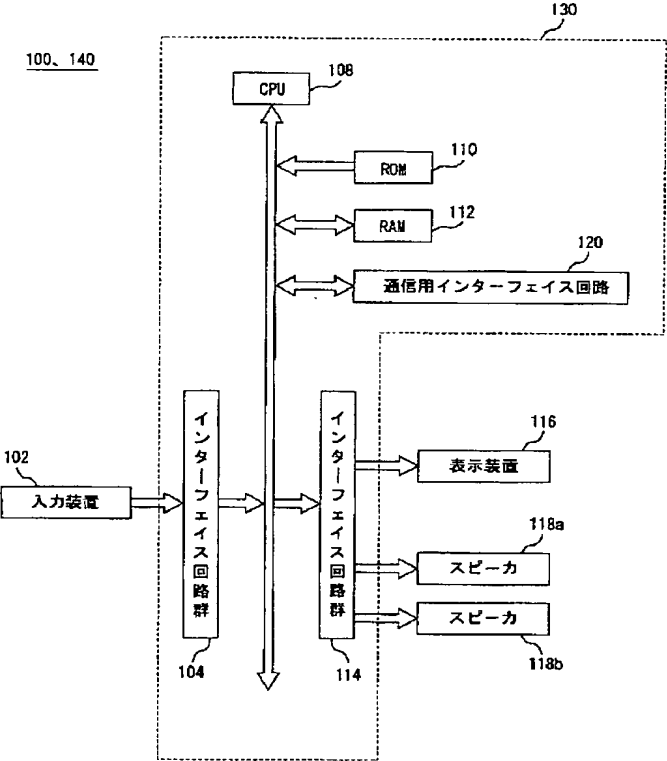
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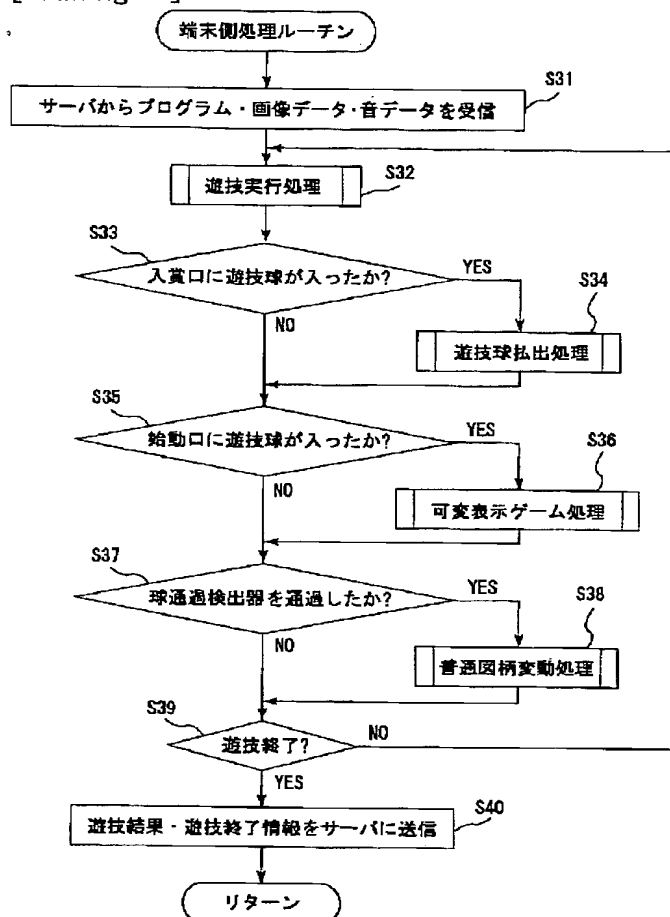
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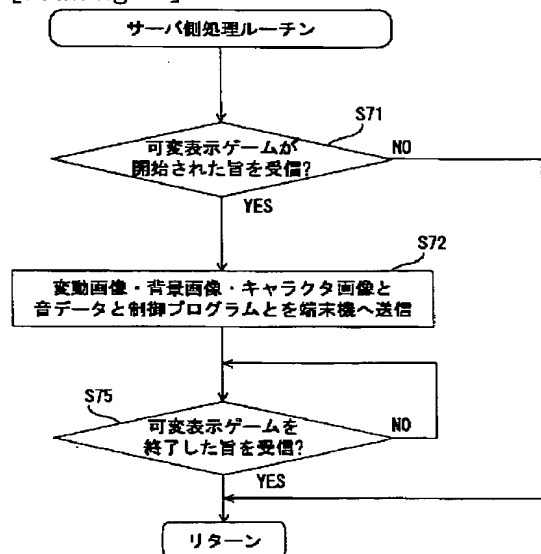
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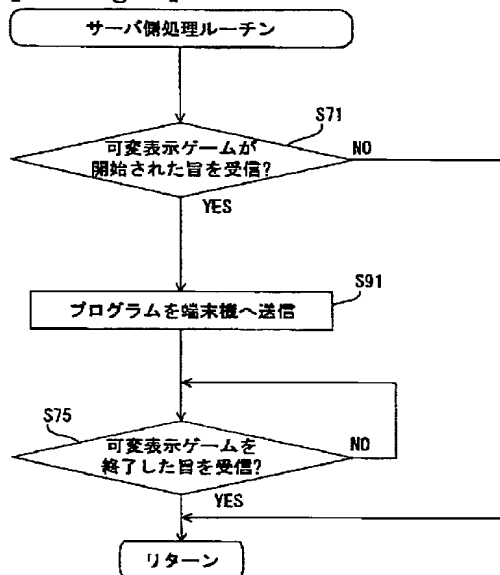
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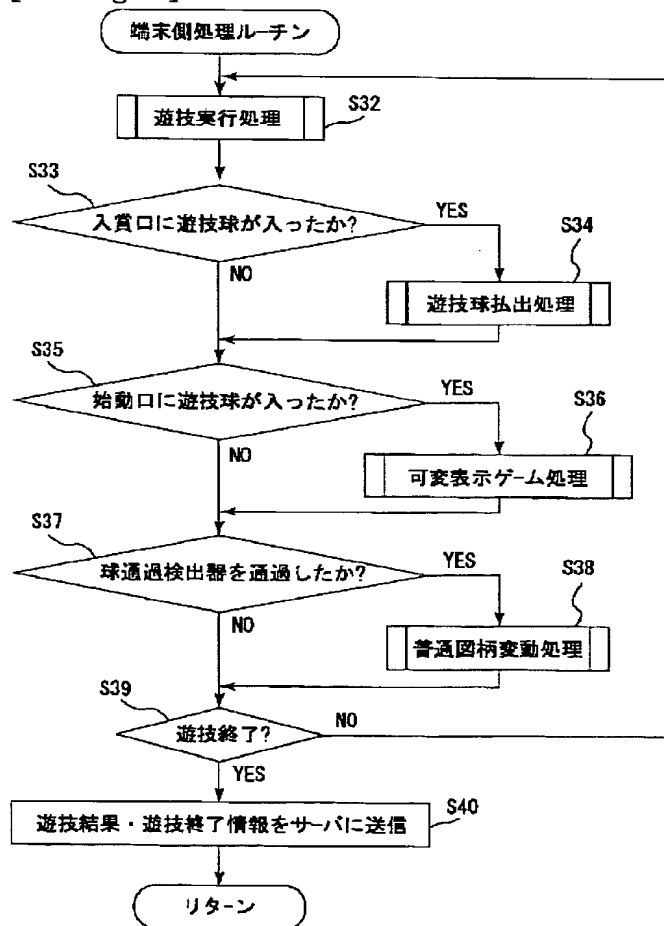
[Drawing 21]



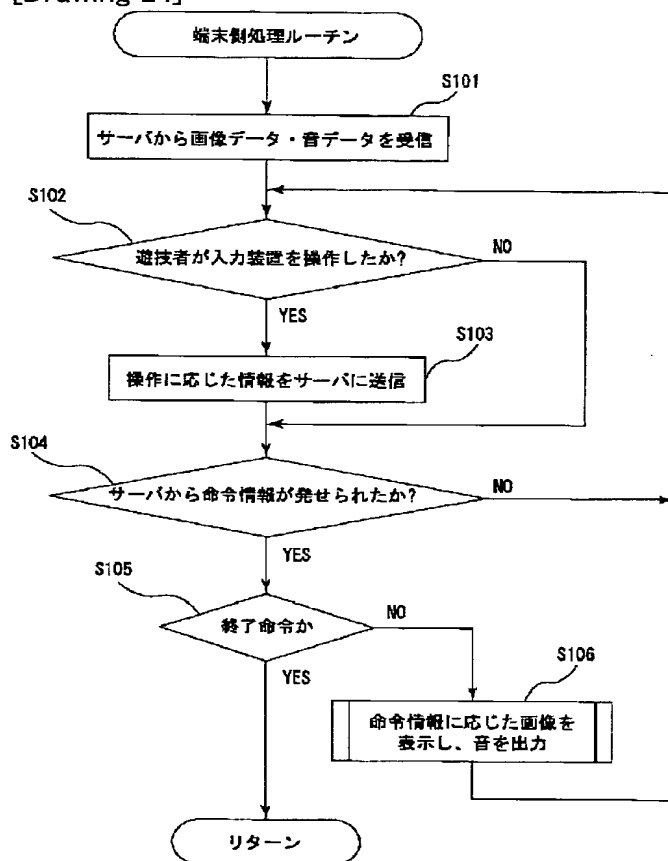
[Drawing 23]



[Drawing 19]

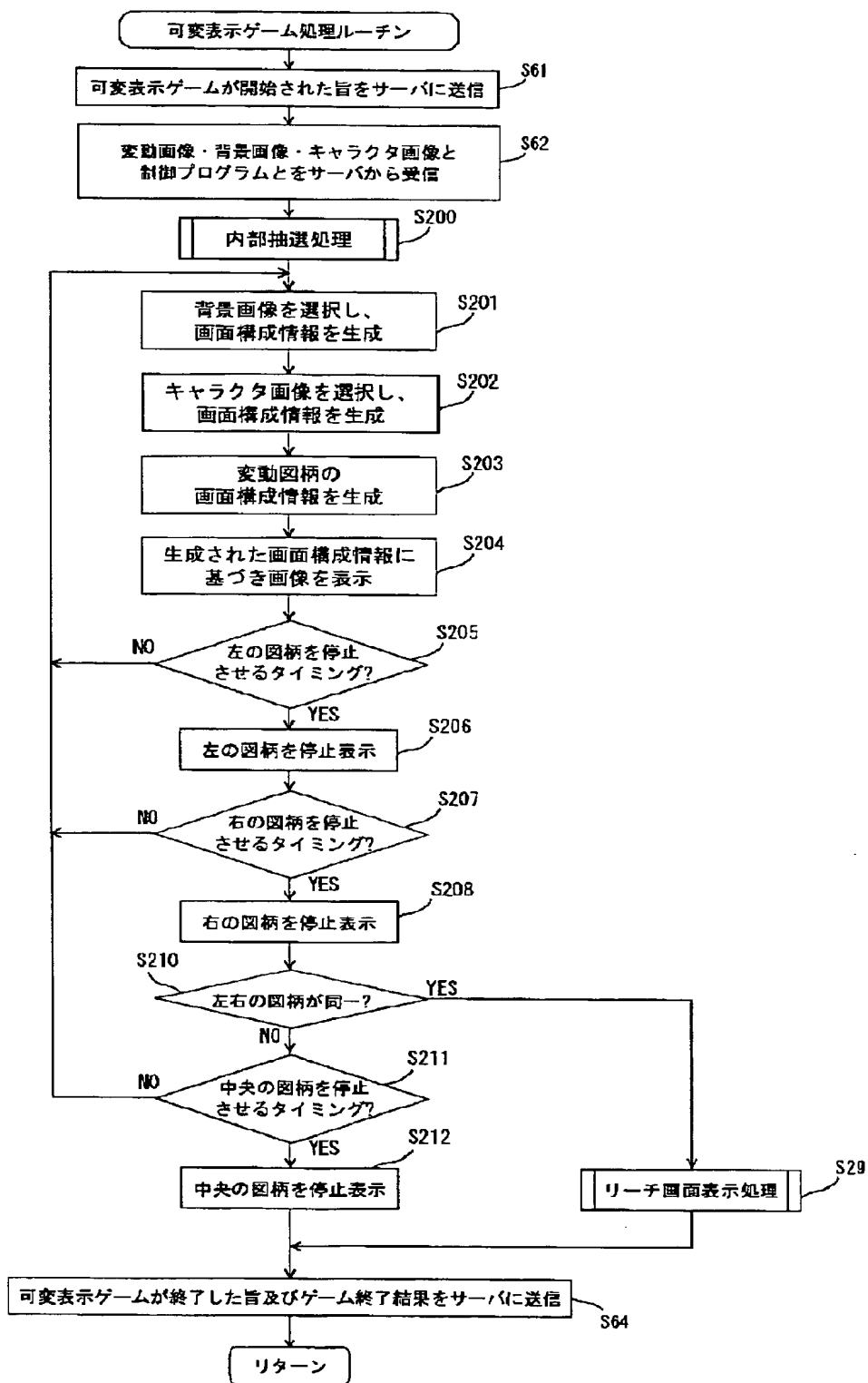


[Drawing 24]

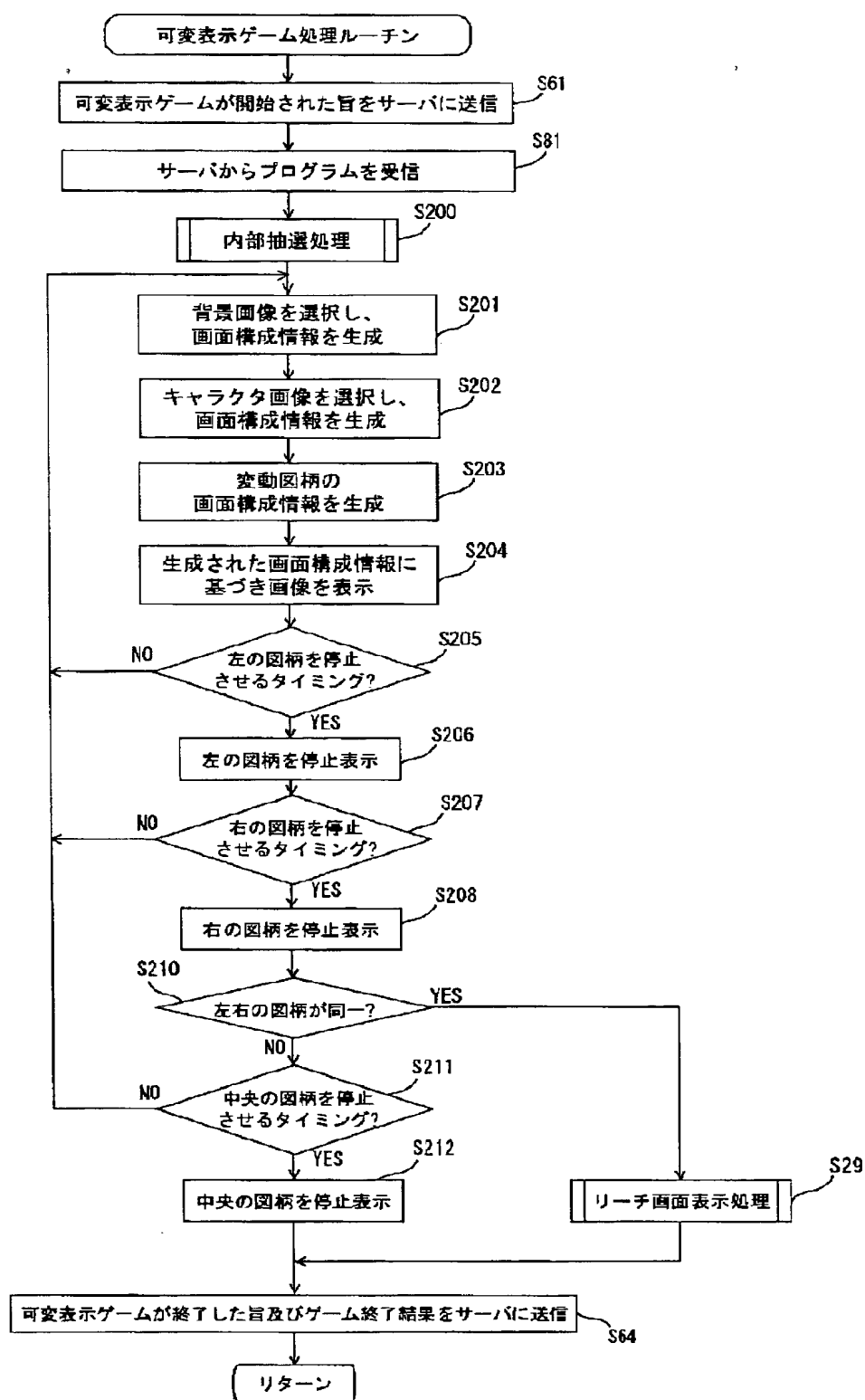


[Drawing 20]

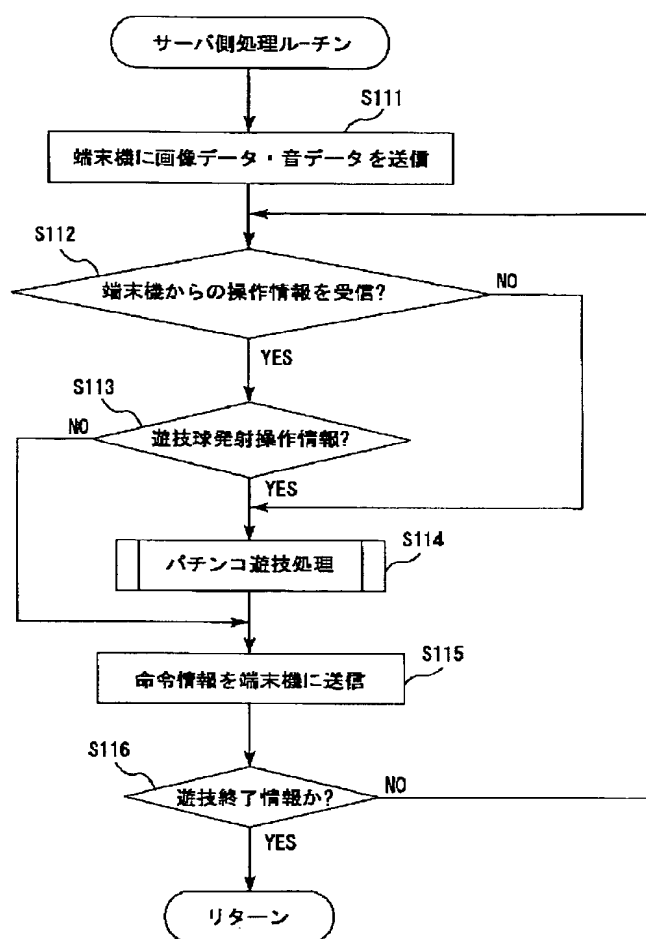




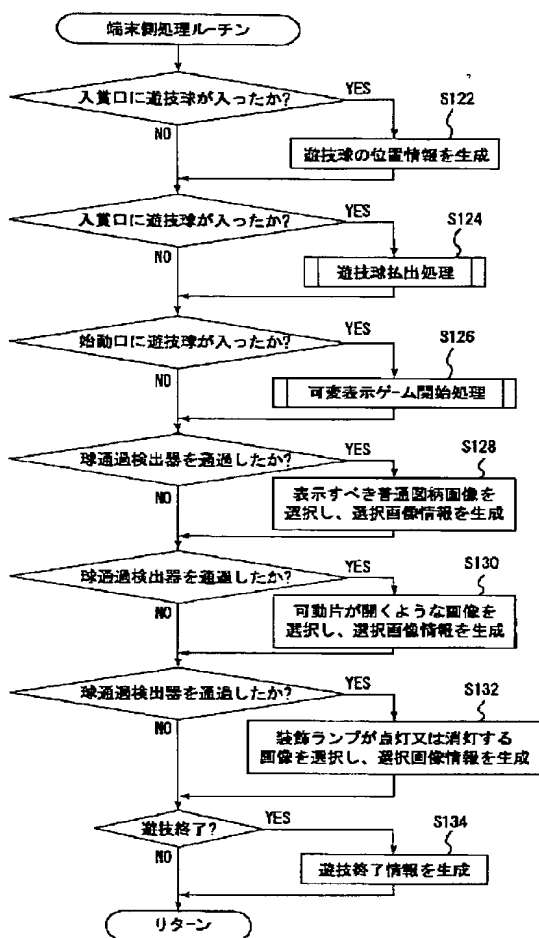
[Drawing 22]



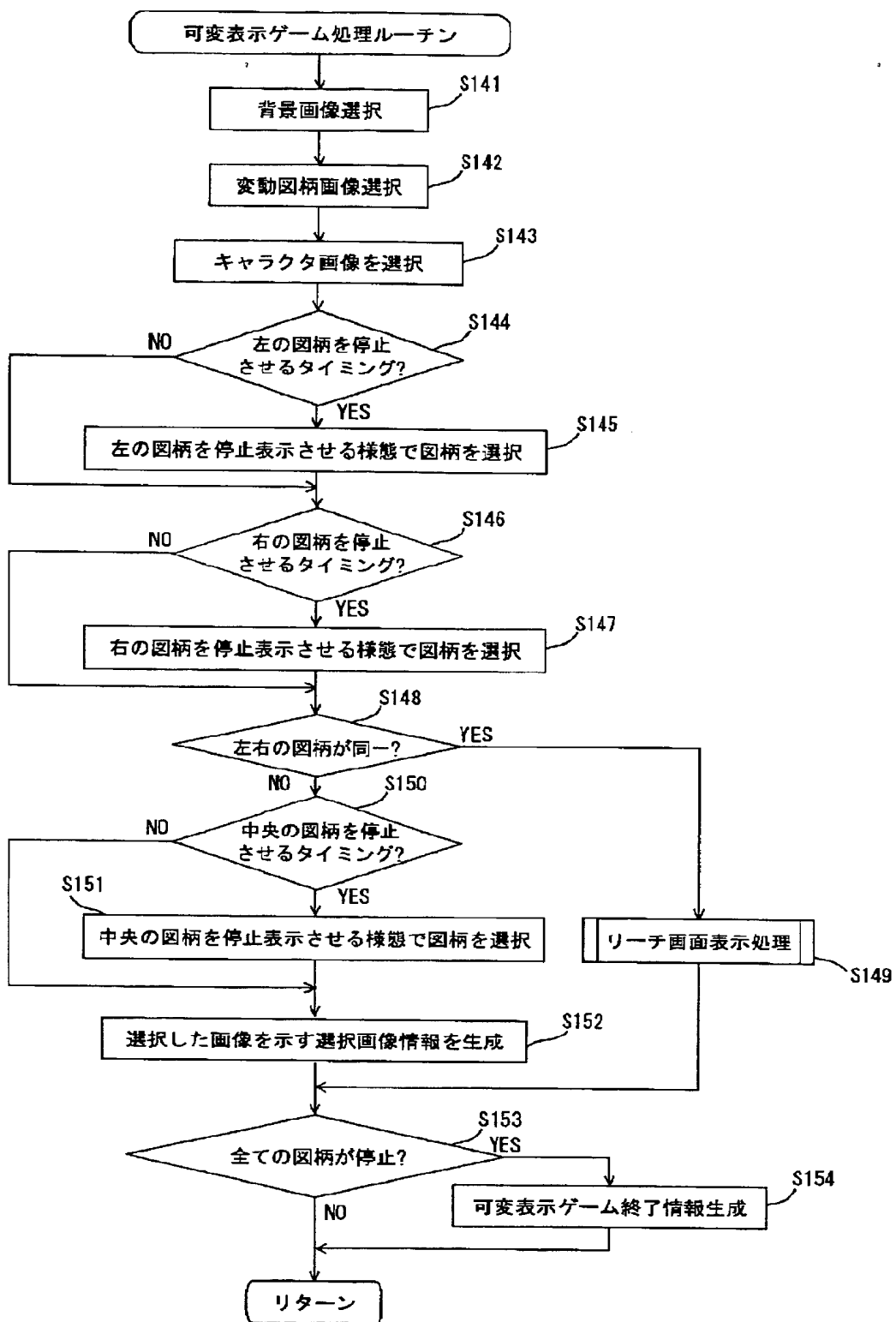
[Drawing 25]



[Drawing 26]



[Drawing 27]



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[Translation done.]